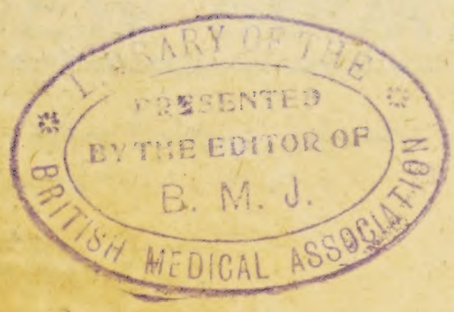
7
Doorway

148 C

Med
K4007


LIBRARY OF THE
PRESENTED
BY THE EDITOR OF
B. M. J.
BRITISH MEDICAL ASSOCIATION

Digitized by the Internet Archive
in 2016

https://archive.org/details/b28142391

IMPORTANT NEW BOOKS.

JUST READY. Crown 8vo., 152 pp. Paper Covers. Price **1s.** net.
Postage 2d. extra.

MONISM?

Thoughts suggested by Professor Haeckel's book 'The Riddle of the Universe.'

By DR. S. PH. MARCUS (of Pyrmont and Berlin).

TRANSLATED BY
R. W. FELKIN, M.D., F.R.S.E., F.R.G.S., etc.,
Author of 'Tropical Diseases in Africa,' etc., etc.

JUST READY. One Large Crown 8vo. volume of 675 pp. Cloth, price **8s.** net.

FOOD AND HYGIENE

An Elementary Treatise upon Dietetics and Hygienic Treatment.

By WILLIAM TIBBLES, LL.D., L.R.C.P., M.R.C.S., L.S.A.,
Medical Officer of Health, Fellow of the Royal Institute of Public Health, etc.

One of the most important methods of building up the race and of checking deterioration is by due attention to the food of the people. In this volume the composition and character of the foods is given from many sources; that of the medicinal waters and the particulars about climates chiefly from official reports.

JUST READY. THE LATEST WORK ON THE SUBJECT.

One Demy 8vo. volume of 490 pp., with 5 Plates (1 coloured) and 300 Figures in the Text. Cloth, price **14s.** net.

ENTOMOLOGY

With Special Reference to its Biological and Economic Aspects.

By JUSTUS WATSON FOLSOM, D.Sc. (HARVARD),
Instructor in Entomology in the University of Illinois.

'On the whole, we have nothing but praise for this book, and not the least obligation which Dr. Folsom has conferred on the student is the admirable bibliography, occupying 57 pages and containing over 1,000 references.'—Prof. G. H. CARPENTER in *The Irish Naturalist.*

Catalogue and Descriptive Circulars sent post free on Application.

LONDON: REBMAN LIMITED, 129, SHAFTESBURY AVENUE, W.C.

JUST READY. One Large Crown 8vo. volume of 382 pp.
Cloth, price **7s. 6d.** net.

HYPNOTISM

Or, SUGGESTION AND PSYCHOTHERAPY.

A Study of the Psychological, Psycho-physiological, and Therapeutic Aspects of Hypnotism.

By DR. MED. AUGUST FOREL,
Dr. Phil. (h.c.) et Jur (h.c.), Chigny, Switzerland.

TRANSLATED FROM THE FIFTH (GERMAN) EDITION BY
H. W. ARMIT, M.R.C.S., L.R.C.P.

The British Medical Journal says: '. . . It is undeniable that the study of hypnotic phenomena has added very greatly to our knowledge of morbid mentality, and that as a guide to the student of this branch of investigation no more fitting book could be chosen than this of the distinguished exponent of the Nancy School. Dr. Armit is therefore . . . to be thanked for his able and painstaking translation.'

IN THE PRESS. NEARLY READY.

One Crown 8vo. volume.

THE HYGIENE OF THE LUNGS

By PROF. DR. L. VON SCHRÖTTER,
Director of the Third Medical Clinic in the University of Vienna.

Translated by H. W. ARMIT, M.R.C.S., L.R.C.P.

This little work is intended to lay before the uninitiated reader (and also before the practitioner) the anatomical and physiological characteristics of the organs of respiration, and the best methods of protecting these organs. It deals with the more common ailments, and with the rational treatments, not only of the affected parts, but also of the causal agents, thus combining an elementary therapy with an elementary prophylaxis. In the most readable manner possible, this little book tells a useful story of the healthy and diseased lungs, a story which the practitioner who reads it will not despise, and which he will find of great value to give his patient to read.

One Demy 8vo. volume of 358 pp. Cloth, price **10s. 6d.** net.

THE EFFECTS OF TROPICAL LIGHT ON WHITE MEN

By Major CHAS. E. WOODRUFF, A.M., M.D.,
Surgeon, United States Army.

Note: This Book also gives Practical Rules for White Men in the Tropics.

The Lancet says: 'The book is one specially for anthropologists, but it will interest all those who are living in the tropics, where it will be welcomed.'

Catalogue and Descriptive Circulars post free on application.

LONDON: REBMAN LIMITED, 129, SHAFTESBURY AVENUE, W.C.

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION
PRESENTED BY THE EDITOR OF B. M. J.

MARRIAGE AND DISEASE

Entered at Stationers' Hall
All rights reserved

LIBRARY OF THE
PRESENTED
BY THE EDITOR OF
B. M. J.
BRITISH MEDICAL ASSOCIATION

MARRIAGE AND DISEASE

BEING AN ABRIDGED EDITION OF

'HEALTH AND DISEASE IN RELATION TO MARRIAGE AND THE MARRIED STATE'

EDITED BY

PROFESSOR H. SENATOR

AND

DR. S. KAMINER

TRANSLATED FROM THE GERMAN BY

J. DULBERG, M.D.

PRESENTATION COPY

LONDON
REBMAN LIMITED
129, SHAFTESBURY AVENUE, W.C.
1907

CONTRIBUTORS

Privatdozent Dr. med. G. ABELSDORFF, Privatdozent Dr. med. L. BLUMREICH, Privatdozent Dr. phil. R. EBERSTADT, Geh. Med.-Rat Prof. Dr. A. EULENBURG, Geh. Med.-Rat Prof. Dr. C. A. EWALD, Geh. Med.-Rat Prof. Dr. P. FÜRBRINGER, Hofrat Prof. Dr. med. M. GRUBER, Dr. med. W. HAVELBURG, Geh. Med.-Rat Prof. Dr. A. HOFFA, Prof. Dr. med. et phil. R. KOSSMANN, Geh. Med.-Rat Prof. Dr. F. KRAUS, Dr. med. R. LEDERMANN, Med.-Rat Dr. A. LEPPMANN, Geh. Med.-Rat Prof. Dr. E. v. LEYDEN, Prof. Dr. med. E. MENDEL, Dr. med. A. MOLL, Geh. Med.-Rat Prof. Dr. A. NEISSER, Geh. Med.-Rat Prof. Dr. J. ORTH, Dr. med. S. PLACZEK, Prof. Dr. med. et phil. C. POSNER, Privatdozent Dr. med. P. F. RICHTER, Prof. Dr. med. H. ROSIN, Dr. med. W. WOLFF.

EDITED BY

GEH. MEDIZINALRAT PROF. DR. H. SENATOR

AND

DR. MED. S. KAMINER.

WELLCOME INSTITUTE LIBRARY
Coll. welMOmec
Call No. QH
11635 796

PREFACE

When the large manual of which this volume is a condensed edition was published some time ago, as a text-book for the medical profession, several writers who reviewed the work suggested that, containing, as it does, a mine of information which is of the utmost interest to the general public, an abbreviated edition intelligible to the ordinary reader would be of the greatest benefit. Acting on this suggestion, the publishers have commissioned me to prepare such an edition, from which all purely technical and professional matter has been excluded, and I have with pleasure undertaken the task. At a time when such questions as the decline of the birth-rate, the sterilization of the degenerate, the restriction of indiscriminate marriages, the voluntary limitation of families, and so forth, form subjects of daily debate and newspaper articles, it is of the greatest advantage that every man and woman who either contemplates or has embarked on matrimony should be as well acquainted as the limits of our conventionality permit with the medical or hygienic aspect of marriage.

Of course, the best way to achieve this end would be for every man and woman to consult a medical practitioner both prior to and in the course of their married life. They would thus become possessed of information which might save them from errors that leave injuries behind, not only in themselves, but also in their offspring. But we can hardly hope to see this rule, vital to the interests of the nation though it be, adopted either by legislation or custom for many years to

come. There remains, therefore, only one course by which a similar result—though to a much lesser extent—can be attained, and that is for the medical profession to spread in a becoming manner, without sensationalism, and in well-reasoned, non-technical language, the knowledge required for the prevention of the evils which ill-assorted or ill-conducted marriages bring in their train.

The present volume is the first attempt to present this information by means of a compilation of a number of short articles by men well known as authorities in the various special branches of medical science. It contains sufficient to call attention to points worth remembering in connection with marriage from the standpoint of health and disease. For further details, if any are required, the reader must apply to his or her medical adviser, the object of this book being, not to make a consultation with the doctor unnecessary, but, on the contrary, to show how such a consultation is of the greatest moment under circumstances which are, by the lay mind, often considered unworthy of the slightest attention.

J. D.

CONTENTS

	PAGE
I. INTRODUCTION - - - - - -	1
By Professor H. Senator.	
II. THE HYGIENIC SIGNIFICANCE OF MARRIAGE - -	8
By Professor M. Gruber (Munich).	
III. CONGENITAL AND INHERITED DISEASES AND PREDISPOSITIONS TO DISEASE - - - - -	24
By Professor J. Orth (Berlin).	
IV. CONSANGUINITY IN MARRIAGE, AND ITS EFFECTS ON THE OFFSPRING - - - - - -	51
By Professor F. Kraus (Berlin).	
V. CLIMATE, RACE, AND NATIONALITY IN RELATION TO MARRIAGE - - - - - - -	87
By W. Havelburg, M.D. (Berlin).	
VI. SEXUAL HYGIENE IN MARRIED LIFE - - -	149
By Professor P. Fürbringer (Berlin).	
VII. MENSTRUATION, PREGNANCY, CHILD-BED, AND LACTATION, IN RELATION TO MARRIAGE - - -	161
By Professor R. Kossmann (Berlin).	
VIII. CONSTITUTIONAL (METABOLIC) DISEASES IN RELATION TO MARRIAGE - - - - - -	172
By Professor H. Senator (Berlin).	
IX. DISEASES OF THE BLOOD IN RELATION TO MARRIAGE	183
By Professor H. Rosin (Berlin).	
X. DISEASES OF THE VASCULAR SYSTEM IN RELATION TO MARRIAGE - - - - - -	193
By Professor E. v. Leyden (Berlin) and W. Wolff, M.D. (Berlin).	

PAGE

XI. DISEASES OF THE RESPIRATORY ORGANS IN RELATION TO MARRIAGE - - - - 200
By S. Kaminer, M.D. (Berlin).

XII. DISEASES OF THE ORGANS OF DIGESTION IN RELATION TO MARRIAGE - - - - 207
By Professor C. A. Ewald (Berlin).

XIII. DISEASES OF THE KIDNEYS IN RELATION TO MARRIAGE - - - - - 217
By P. F. Richter, M.D. (Berlin).

XIV. GONORRHŒAL DISEASES IN RELATION TO MARRIAGE 226
By Professor A. Neisser (Breslau).

XV. SYPHILIS IN RELATION TO MARRIAGE - - 251
By R. Ledermann, M.D. (Berlin).

XVI. DISEASES OF THE SKIN IN RELATION TO MARRIAGE 265
By R. Ledermann, M.D. (Berlin).

XVII. DISEASES OF THE ORGANS OF LOCOMOTION IN RELATION TO MARRIAGE - - - 275
By Professor A. Hoffa (Berlin).

XVIII. DISEASES OF THE EYE IN RELATION TO MARRIAGE, WITH ESPECIAL REGARD TO HEREDITY - - 284
By G. Abelsdorff, M.D. (Berlin).

XIX. DISEASES OF THE LOWER UROGENITAL ORGANS AND PHYSICAL IMPOTENCE IN RELATION TO MARRIAGE 295
By Professor C. Posner (Berlin).

XX. DISEASES OF WOMEN, INCLUDING STERILITY, IN RELATION TO MARRIAGE - - - 314
By L. Blumreich, M.D. (Berlin).

XXI. DISEASES OF THE NERVOUS SYSTEM IN RELATION TO MARRIAGE - - - - - 323
By Professor A. Eulenburg (Berlin).

XXII. INSANITY IN RELATION TO MARRIAGE - - 346
By Professor E. Mendel (Berlin).

XXIII. PERVERSE SEXUAL SENSATIONS AND PSYCHICAL IMPOTENCE IN RELATION TO MARRIAGE - 371
By Albert Moll, M.D. (Berlin).

PAGE

XXIV. ALCOHOLISM AND MORPHINISM IN RELATION TO MARRIAGE - - - - - 415

By A. and F. Leppmann (Berlin).

XXV. OCCUPATIONAL INJURIES IN RELATION TO MARRIAGE 433

By A. and F. Leppmann (Berlin).

XXVI. MEDICO-PROFESSIONAL SECRECY IN RELATION TO MARRIAGE - - - - - 438

By S. Placzek, M.D. (Berlin).

XXVII. THE ECONOMIC IMPORTANCE OF SANITARY CONDITIONS IN RELATION TO MARRIAGE - - 441

By Rudolf Eberstadt (Berlin).

MARRIAGE AND DISEASE

I.

INTRODUCTION.

By PROFESSOR H. SENATOR.

With the exception perhaps of a few races in the lowest stages of evolution, marriage has probably at all times and by all nations been regarded as an institution of the highest importance to the existence and prosperity of human society. For this reason the marriage ceremony has always been celebrated with more or less solemnity and surrounded by festivities the nature of which depended upon the actual state of civilization of the contracting parties. But while religions and legislatures have from very early times endeavoured by laws to regulate the new conditions arising from the married state with a view to increasing the welfare of whole nations or of the entire human family, the question of health in reference to marriage has hitherto attracted but little attention. What effect the physical state of husband and wife has upon each other or upon their union—*vice versâ*, what influence marriage exercises upon the life and health of the married couple or of their descendants, and even on the welfare of entire families or communities—these points have as yet received outside medical circles, and especially at the hands of legislative bodies, either no recognition at all, or not as much as is commensurate with our present knowledge and views.

Neither the Mosaic Law, though it contains the minutest hygienic prescriptions with regard to every phase of life, nor

the law books of other nations have looked upon marriage from any other point of view than that of its *object*, and as such was exclusively regarded the procreation of children, in order that the human race may be propagated and preserved.

The intention to create for the State strong and hardy citizens, and only such, found its most marked practical expression in the customs of the Spartans, who went so far as to suspend compulsory monogamy or monandry in the case of unfruitful marriages, and to encourage the destruction by exposure of delicate and sickly infants. The same notion evidently influenced Plato when, legislating for his ideal State, he suggested rules and regulations as to the contraction and form of marriage which, intended chiefly for full citizens and public servants, had no other object in view than the production of strong and active children. Aristotle almost demanded the municipalization of marriage and of the procreation of future generations. These views of Plato and Aristotle have never been put to a practical test, partly because they would permit to the State authorities too great an interference with the personal liberty of the subject, and partly because the moral essence of matrimony has in the course of time, and particularly under the influence of Christianity, come into greater prominence. With the growing authority of the Church, the solicitude for the spiritual welfare of the people assumed an ever-increasing importance, and all other considerations, especially those relating to bodily well-being, earthly possessions, and physical strength, became of secondary consequence. Gradually, however, a change took place, and the physical side of life enjoys at the present time greater appreciation than it has ever done. Endeavours are constantly being made to raise the prosperity of the nations by politico-economic measures, and the health and vigour of the community are regarded as necessary accompaniments of spiritual and moral progress. *Mens sana in corpore sano.*

From this standpoint of public health marriage deserves the fullest consideration, far more than it has generally received hitherto, because its importance to the physical and mental welfare of humanity goes further than the desire for a healthy and vigorous offspring. Apart from the sphere of procreation, it has numerous relations to health and disease, and particularly in three directions. Marriage can be on the one hand a source of disease or the aggravating cause of pre-existent diseases; *vice versâ*, diseases or physical defects can have a disturbing and detrimental influence upon marriage; and it is finally possible for marriage to consummate the cure or alleviation of conditions of ill-health.

With regard to marriage as a cause of disease, the very entrance into new conditions of life necessitated by the act of marriage, the separation from accustomed surroundings, the transition to an intimate companionship with a person of the opposite sex, can give rise to depressions and disturbances of various sorts. These may be caused independently of the marital intercourse, by the necessity of husband and wife to fuse their identities, and by the mutual dependence upon each other thus created—in brief, by the whole force of the new mode of life.

This influence of marriage is naturally stronger and more frequently evident in the wife than in the husband, partly because of the greater sensitiveness of the nervous system in the female, and partly because the changes occasioned by marriage in the life of a woman are of much vaster significance than is the case with the man, though in him, too, marriage may be productive of disease in consequence of the greater anxiety and the increased responsibilities of married life.

Secondly, it is by the transmission of disease from one person to another that marriage can become a fruitful source of illnesses, not only of a venereal character, but also of other kinds, as, for instance, tuberculosis and other infectious or parasitic diseases; for it is obvious that married life pre-

sents the most favourable opportunity to all the causative agents of an infective nature.

Thirdly, marital intercourse *per se*—that is, where both husband and wife are in perfect health, and there is no vestige of any transmissible disease—can produce in various ways conditions of ill-health, either of a purely mechanical nature, or through the influence exercised upon the nervous system. Finally, pregnancy and childbirth, although they are physiological processes, are, nevertheless, often enough the starting-point of various and numerous untoward conditions.

Fourthly, marriage is for various reasons of the highest importance to the life and health of the offspring. The labour process alone may cause injury to the child or occasion its death. But of no less import are certain conditions in the state of the parents or of one of them prior to the birth of the child. These play an important part at the conception and during pregnancy, and may have a calamitous effect upon the embryo.

It is erroneously assumed, especially in lay circles, that it is only for such diseases of their parents as are acquired through debauchery and excesses that the children have to pay the penalty. This is not so. At least just as many absolutely innocent parents, free from all taint of immorality, and with a pure past life, bring into the world dead or delicate children, children predisposed to all kinds of diseases, not as a consequence of their sins and vices, but through circumstances connected with the married state which have either knowingly or unknowingly been neglected or disregarded.

As sound and wholesome fruit can only grow on sound soil, so a healthy vigorous progeny requires health and vigour in the parents and ancestors. This radical truth has from the earliest times been duly appreciated by agriculturists, and practically acted upon with regard to plants and animals. It is true that Plato has recommended a similar natural selection with regard to human procreation, but his precepts,

though they have received some confirmation by the Darwinian theory, have in reality remained 'platonic' for the reasons already mentioned. How often are these principles violated both in the contraction of marriages and in their consummation! What a number of weak and deteriorated generations have been the outcome of these transgressions! With more justification than Mephistopheles to the student can we exclaim to every child descended from diseased ancestors, to every descendant of wretched family conditions: 'Woe to thee that thou a grandson art!'

The foregoing remarks make it sufficiently clear that matrimony, with all its consequential conditions, presents an enormous field for the activity of those interested in the public health. We have only to think of the number of marriages which are constantly being entered into without any regard to the physical condition of the parties contracting them, without any attention being paid to their constitution, state of health, descent, or possible hereditary predisposition to disease. Let us realize how often necessary hygienic precautions are through ignorance or carelessness, or for the sake of other considerations, neglected by people about to marry or already married, and we shall at once understand how it is that marriage is responsible for so much disease and misery, so much wretchedness and misfortune in this world, and also how much of it could be avoided by judicious sanitary measures. Truly an object worth striving for!

In order to attain it, it is above all necessary that the medical profession should be consulted before the consummation of intended marriages as well as during married life. There is no more appropriate person for this than the ordinary family practitioner, who knows the histories of the patients entrusted to his care, and therefore has unequalled opportunities of observing them from their childhood or even from their birth. It is to be regretted that the tendency among the public to consult a specialist in every case of

illness is having the effect of gradually eliminating the old-fashioned family attendant, a class of practitioners who should rather receive all possible encouragement with a view to becoming much more general. To decide whether a specialist is required ought to be the concern of the family doctor, who, no matter how capable he is, cannot be expected to be—nor is it necessary that he should—an expert in every branch of medicine, but he is certainly more qualified than a layman to judge whether the opinion of any particular authority is called for or not.

It is permissible to hope that the medical profession will eventually succeed by instruction, explanations, and warnings in convincing the larger public of the utility—ay, necessity—of taking into consideration the physical condition of the parties contracting or living in marriage. Is a medical opinion less called for on such occasions than it is, for instance, with respect to the fitness of school-children, the inspection of scholastic establishments, or the acceptance of candidates for life insurance?

It can hardly be expected or demanded that this conviction shall result in submission to medical authority in absolutely every case. There are occasions when considerations of health or even life have to yield to others far more weighty, and when medical opinion is obliged to give way to circumstances of superior force.

It is also desirable that the State or municipalities shall devote greater attention than has hitherto been the case to the somatic conditions of persons about to marry or already married, without giving rise to any fears that compulsory measures will become an immediate necessity. But inasmuch as marriage is an institution of the deepest importance to the welfare and economical prosperity of a nation, the query is by no means unjustified whether it ought not to be permissible in the interests of the commonwealth to introduce measures calculated to restrict marriage where the sanitary conditions are unsatisfactory, or to protect from danger

persons already married, much in the same way as is done by the laws and regulations with regard to vaccination, disinfection, etc. The question may therefore well be asked whether, having regard to the health of the people living in matrimony and to that of their descendants, there should not be an expansion of the legal impediments to marriage and of the divorce laws, as also of the punishable offences committed by husband or wife against each other or their offspring. At the same time, it must be admitted that the difficulties which will have to be overcome in order to find a course consonant with the interests of the community as well as the demands of justice, with the general notions as to morality as well as the personal liberty of the subject, are exceedingly great, though not insurmountable.

It is idle to entertain the hope that the State and society will ever succeed by regulations, no matter how carefully planned and even if they were so exacting as those demanded by Plato for his best State, in creating exclusively ideal marriages; but it is not unreasonable to hope that increased vigilance with regard to the hygienic conditions of marriage will result in the avoidance of a mass of disease and misery, and in rendering so many marriages happy that there shall be every justification for Goethe's poetical description of the matrimonial state (*Die Natürliche Tochter*, Act IV., Scene 2):

'Vollbestand
Erwünschter Lebensgüter sind wir ihm,
Sowie der Zukunft höchste Bilder schuldig.
Als allgemeines Menschengut verordnet's
Der Himmel selbst, und liess dem Glück, der Kühnheit
Und stiller Neigung Raum, sich's zu erwerben.'

II.

THE HYGIENIC SIGNIFICANCE OF MARRIAGE.

By PROFESSOR M. GRUBER (Munich).

I. Preliminary Remarks.—Sexual instinct makes of the individual an instrument of procreation. In associating the performance of the procreative act with the highest pleasurable sensations, Nature has taken care that the individual shall not shirk his duty, that the stream of life shall not run dry. But while the desire is so strong, and its gratification so agreeable, it presents many dangers both to the individuals fulfilling it as well as to their descendants. Of course, Nature removes the damage thus caused by destroying in the course of time the feeble, the degenerate, and the diseased. But this readjustment takes place at the cost of an enormous amount of pain and misery, of a wholesale destruction of individuals, families, races, and nations. If the extent of this misfortune is to be diminished, if these dangers are to be avoided, it is necessary that the blind desire shall be restrained by reason, and it is certain that mankind has from its earliest beginnings recognised more or less clearly the necessity of regulating sexual intercourse, and attempted more or less aptly to deal with it. The more our knowledge of natural processes advances, the more we become convinced of the necessity of this regulation; and the stronger the influence of this conviction on our will-power, the more it is permissible to hope that near generations will treat the subject with incomparably greater wisdom than we are capable of.

But not all the fruit of the tree of knowledge is nutritious and wholesome. Reason and civilization can show the way also to the unnatural, and consequently to new dangers and injuries of moral and material kinds. The temptation is particularly great to deprive Nature of her reward, and to try whether and how it is possible to enjoy the delights of love without taking upon one's self the burdens of procreation. The more cynical an individual is in the satisfaction of his own selfish ends, and in seeking pleasures without regard to others, the more frequently and the more completely he will succumb to that temptation.

But Nature will hardly allow anyone to impose on her with impunity, and most of these attempts result in the end in bodily harm to their originators. Even though the individual escape unpunished, it is the community, the nation, which suffers where the evil assumes large proportions—not only because the natural increase of the population remains at a standstill, but much more on account of the diminished family sentiment, that source of humanity which is hardly capable of substitution.

There is certainly no exaggeration in regarding a well-regulated and yet natural sexual life of a nation as the indispensable foundation of its permanent spiritual and physical health. A nation which seeks in sexual life nothing but pleasure is bound to disappear. The future belongs to the race that regulates its sexual life with a view to procreating a strong and mentally efficient progeny.

II. Hygienic Advantages of Marriage—(*a*) *Prolongation of the Life of Married Individuals.*—There can be no doubt that monogamous permanent marriage, which appears to be a most natural consequence of the numerical proportion of the sexes, is morally as well as hygienically the best system for the gratification of the sexual desire.

Marriage is in the first instance, like all our modern social and civilized institutions, an arrangement which is of the highest benefit to the health of the married persons them-

selves. This statement applies fully, as statistics of mortality point out, with regard to all men over twenty years of age; with regard to women, not before the fortieth year, since many of them are during the child-bearing period liable to succumb to the dangers that accompany the sexual life of the female, many of which, however, it is scarcely necessary to mention here, can be avoided by rational midwifery and by an appropriate care of the puerperal woman.

Since the statistics of all European countries show the same results, those of Sweden are here given as an example:

TABLE I.

Annual Deaths per 1,000 of each Age-class—Sweden, 1881-1890.

Age Years.	Males.				Females.			
	Single.	Married.	Widowers and Divorced.	Total.	Single.	Married.	Widows and Divorced.	Total.
20	6·10	4·64	—	6·09	4·85	6·40	9·95	4·96
25	7·59	4·28	10·15	6·74	5·66	6·16	9·41	5·85
30	9·20	4·95	8·90	6·73	6·42	6·37	10·23	6·44
35	11·24	5·68	10·76	7·11	7·02	6·96	10·16	7·06
40	14·67	7·42	12·89	8·75	8·13	7·94	9·50	8·06
45	19·07	9·22	13·75	10·62	10·15	8·04	9·99	8·60
50	22·75	11·68	17·35	13·15	12·18	8·99	11·88	9·90
55	28·68	15·40	21·62	17·09	17·07	12·31	15·53	13·64
60	37·16	22·11	29·96	24·33	23·22	17·24	21·18	19·13
65	49·42	31·45	40·23	34·44	34·74	27·00	31·33	29·59
70	70·40	47·95	58·65	52·55	49·93	42·76	48·82	46·52
80	138·90	121·42	142·97	134·10	127·66	105·31	119·34	117·73
90	234·58	274·78	318·97	306·47	293·11	235·04	268·45	268·00

It is very important that we should have a clear idea wherein the favourable influence of marriage lies. An attempt has been made to prove by these statistics that sexual intercourse is a healthful necessity. But not only does this view rest on a foundation far too ingenuous for modern conditions—namely, that all single men are as a matter of course continent; it is inadmissible because there is more than one factor contributing to produce a lower mortality

among married persons than among those living singly. The fact that monks and nuns do not generally show a materially higher mortality than the average of their respective ages does not seem to indicate that the frequent sexual intercourse of married life is beneficial to health in a marked degree.

Among the lower classes the opinion prevails, and for easily comprehensible reasons is assiduously imparted by the husbands to their wives, that sexual intercourse, or the frequent discharge of semen, is of absolute necessity to the health of the man. Science, however, cannot subscribe to this. It is absurd to regard the seminal fluid as an injurious secretion which requires regular evacuation like the urine. There is probably no doubt that part of the semen is not only reabsorbed during sexual abstemiousness, but that this reabsorption seems to have even a beneficial effect on the constitution, if we may judge by the experiences of athletes, sportsmen, scholars, and artists, who feel most fit for work when refraining entirely from sexual intercourse. The development of later sexual characters, physical and psychical, is doubtless also due to the reabsorption of the secretion from the seminal glands. That this reabsorption acts favourably is shown by comparing normal men and women with castrated individuals.

There consequently appears to be no doubt that the majority of normal men can, no less than women, permanently renounce sexual intercourse or the gratification of the sexual desire altogether without suffering any injury. Those who do not believe in the experiences of man referred to above may draw this conclusion from what we see in our domestic animals. Stallions and mares, male and female dogs, remain healthy though they are not allowed to copulate.

It is, of course, necessary that every intentional and artificial excitement of the sexual instinct be avoided, otherwise it is possible for the desire to assume the character of a forcible impulse.

I have gone into the question of the injuriousness of

continence* because many individuals are either permanently or for a time obliged to forego the idea of marriage, and because during married life also long periods occur in which marital intercourse is impossible or not permissible. The non-connubial intercourse indulged in under such circumstances as a means of combating the alleged harmfulness of continence is not only unnecessary, but fraught with the gravest dangers. One has only to think of the enormous risks of venereal infection with which non-conjugal intercourse is associated, not to speak of its objectionable character from a moral point of view.

It is not the frequent gratification of the sexual desire which constitutes the cause of the remarkable comparative longevity of married men. Rather must it be taken for granted that their more orderly and regulated mode of life, the, on an average, lesser abuse of alcohol, and the relative infrequency of venereal infection, and of its consequences, are the factors which play the principal part.

There is one other item which deserves mention as apparently contributing to the beneficial influence of marriage. Marriage involves, even in our present day, a certain selection of the fittest, though not a sufficient one, inasmuch as highly degenerate individuals—such as idiots, lunatics, cripples, lame or blind persons, etc.—are, as a rule, excluded from it. The quality of the married class is therefore, to begin with, somewhat better than that of the single class. As a matter of fact, it has been attempted to attribute the whole of the difference in the mortality of the two classes to this circumstance alone, but hardly with any justification. Against this one-sided view we must remember that married persons show a lower mortality at all ages, even the highest, whereas the disappearance of the degenerates should, on the whole, be completed during the earlier years.

* The subject is discussed at greater length in the large edition of this work, where scientific readers will find many interesting details.—Translator.

It has also been suggested that the case rests upon the economically superior position of those who can afford to marry, and that it is only a special result of the beneficial effects of affluence. But this is certainly not true. The bulk of the people marry without troubling much about the future, and if any married couples have at the commencement of their married life a certain material advantage, it soon gets lost where there are children to be brought up.

That it is not the selection, but the married state itself, which is the favourable factor can also be seen from the high mortality among the widowed and the divorced (see Table I.). In any case, it is an important fact that the contraction of marriage signifies an increase in the mean expectation of life. It has been calculated that a married man, aged thirty, has an expectation of life longer by five years than a bachelor of the same age, and a married woman, in spite of the dangers of pregnancy and child-bed, one longer by one year than a spinster of the corresponding age.

(*b*) *Advantages to the Offspring.*—If marriage is an important hygienic institution from the point of view discussed so far, it is even to a greater extent a safeguard to the succeeding generation. The fruit of connubial intercourse is, to begin with, better protected in the mothers' wombs than the illegitimate child; it has much better chances to withstand the perturbations of labour, better prospects of receiving at the mothers' breasts the nourishment provided by Nature, and is usually looked after with greater attention during the early years, so full of dangers, as well as afterwards. Herein lies the great interest which society and the State have in marriage and in the prevention of the procreation of illegitimate children. On these points also statistics show everywhere the same results.

The following table gives a comparison of the numbers of still-births in different European countries for the year 1893-1894:

TABLE II.

Still-births per 1,000.

	Legitimate.	Illegitimate.		Legitimate.	Illegitimate.
Italy	39	51	Prussia... ...	32	46
France... ...	44	74	Austria... ...	27	42
Belgium ...	43	63	Hungary ...	23	31
Holland ...	44	81	Denmark ...	24	32
Wurtemberg ...	32	35	Norway ...	27	41
Bavaria ...	30	36	Sweden ...	25	33
Saxony... ...	32	41	Finland ...	26	47

The next table is also an instructive example of the mortality of legitimate as compared with illegitimate children. It was prepared after a most careful study of the statistics of the city of Berlin for the year 1885 :

TABLE III.

Survivals per 1,000 Births—Berlin, 1885.

Age.	Legitimate.	Illegitimate.	Age.	Legitimate.	Illegitimate.
Birth	963	943	$1\frac{1}{4}$ years ...	709	488
1 month ...	911	828	$1\frac{1}{2}$,, ...	691	471
2 months ...	889	767	$1\frac{3}{4}$,, ...	679	455
3 ,, ...	868	716	2 ,, ...	669	446
6 ,, ...	813	613	3 ,, ...	642	425
9 ,, ...	769	557	4 ,, ...	624	412
12 ,, ...	735	515	5 ,, ...	612	405

If we examine into the causes of death among illegitimate children, we find that those which emanate from digestive disturbances predominate. And this is easy to understand. For it is obvious that illegitimate children are not as often breast-fed as those born in wedlock, and that less care is exercised in their artificial nutrition.

III. Injuriousness of Marriage where Health is Defective or Age Unsuitable.—Sexual intercourse

is hygienically permissible only to such persons as are sexually perfectly mature, healthy, and in full vigour, since only from healthy and mature parents can a healthy progeny be expected. If immature persons marry, the premature sexual intercourse is as injurious to them as it is to unmarried individuals, and this is proved by the markedly higher mortality among young married people when compared with those that are not married. This difference is particularly noticeable in the case of young men. Thus there died in Oldenburg, in the years 1876-1885, annually on an average, out of 1,000 single men between fifteen and twenty years old, 6·3; out of 1,000 married, 8·7; out of 1,000 unmarried women of the same ages, 5·7; out of 1,000 married, 6·2.

Persons of advanced age should, like those who are immature, also be dissuaded from marrying. I know quite a large number of cases where men over fifty years of age were no longer equal to the demands of a new marriage; it was particularly the heart and the bloodvessels that could not stand the severe 'rush of blood.'

IV. The Constitution of the Offspring Dependent on that of the Parents.—Of the greatest importance to the succeeding generation is the physical constitution of the parents. This is a fact which is very insufficiently recognised by the laity as well as by the medical profession. It ought to be the guiding standpoint at the contraction of marriages and while exercising the procreative act during marriage, that it is a dereliction of duty to bring children into the world which will probably be the subjects of congenital anomalies, affected with disease or a predisposition to disease, or devoid of vitality and unable to withstand extraneous injuries.

There is not the slightest doubt that we are in everything essential the creatures of our parents and of our ancestors, that it is, on the whole, predestined by the nature of the germs from the combination of which we emanate what we are and what we are to be.

By no means everything that is given us is good! The parental germs themselves may, to begin with, be possessed of inherited deficiencies, or they may have suffered by injuries which affected the parental body, or they may not have been perfect on account of the immature or too advanced age of the parents. I do not mean in this short survey to go at all into the complicated question whether so-called 'acquired peculiarities' of the parents can be inherited by their descendants.* Though the theoretical interest in this point is very great, it has not practically that high importance which has been attributed to it. Thus the question whether a tuberculous father from whom his descendants have inherited a predisposition to tuberculosis was himself hereditarily predisposed to the disease may be very interesting, but what is practically important is the undoubted fact that tuberculous fathers bequeath exceedingly often a predisposition to tuberculosis.

I will now enumerate briefly what we know of the injuries to, and the deficiencies of, the germ substances which are transmissible to the progeny.

(*a*) *Age of the Parents.*—Where the parents are much too young (mother under twenty, father under twenty-seven) the children are not infrequently delicate; malformations and idiocy are also more frequent among the children of young parents than among those of the fully mature.

Equally unfavourable is advanced age of the parents (mother above forty, father above fifty). It is worth mentioning that very young mothers, and those approaching the change of life, are more prone to give birth to twins than women in their prime.

(*b*) *Number and Rate of Successive Pregnancies.*—All that weakens the organism of the parents acts, in the majority of cases, debilitatingly on the descendants also, and this is particularly the case where the mother is delicate, either because the ovum possesses little vitality, or because the

* See the next article.

nutrition of the embryo is insufficient. It is here necessary to point out that the maternal organism suffers in a manner calculated to injure the descendants where pregnancies follow each other too rapidly, or where they are too numerous. Statistics of infantile mortality show that on an average the third and fourth child of the same woman are the strongest, and that beginning with the fifth, sometimes with the fourth, their vitality diminishes pretty rapidly. The unfavourable influence is especially great where pregnancies follow each other within one year. Even those children who are born between one and two years after their predecessors show a fairly higher mortality than children who follow after a longer interval. Pregnancies should therefore not succeed one another more rapidly than at intervals of two and a half years. Only thus it is possible for a mother to suckle her children sufficiently long.

(*c*) *Economic Conditions.*—If the younger children of prolific marriages are on an average weaker than the older ones, this is partly due to economic conditions. The greater the number of children, the more difficult it becomes to provide them with sufficient and good nourishment, and to bring them up with the necessary care. For this reason also the unrestrained and proletarian procreation of children is open to objection. There should be no more children brought into the world than can presumably be fed and reared.

(*d*) *Diseases of the Parents.*—Many chronic and exhausting diseases are productive in the descendants of feeble vitality, diminished resistibility, slow and incomplete development, and sometimes of diseases, or predispositions to disease, which are characteristic of the respective parental conditions.

This applies especially to certain chronic metallic intoxications (*e.g.*, lead-poisoning), which are harmful to the children if either the father or the mother suffers from them, syphilis, tuberculosis, mental and nervous diseases, alcoholism and morphinism.

It is well known that syphilis can be transmitted directly

from parents to children, thus giving rise to congenital secondary or tertiary lesions. The infection may proceed either from the father or from the mother. But even when they do not actually receive the infective virus, the children suffer through the parental syphilis, as is proved by the large number of miscarriages and still-births, also by the great infantile mortality, and by the frequent occurrence of stunted and backward children among the offspring of syphilitic individuals.

The children of tuberculous parents become themselves very often tuberculous. It is probably very seldom indeed that they are infected directly at the conception or during pregnancy, as is the case with syphilis and some other infectious diseases such as small-pox, scarlet fever, etc.—at least, it would seem so, judging from the exceedingly small number of people affected with congenital tuberculous processes of a manifest character, and also from the fact that not in one single case has an inherited infection been traced to the paternal semen. To some extent the frequency of tuberculosis among the children of tuberculous parents is probably due, not so much to direct hereditary transmission, as to the circumstance that, in their extra-uterine life, such children are as a rule in a very marked degree exposed to the danger of infection.

It would, however, in my opinion, be altogether wrong to attribute the occurrence to the last-mentioned factor only. It seems to be established beyond doubt that the children of tuberculous parents are not only very often of weakly constitution and ill-developed, like the children of parents suffering from any chronic disease, but that they possess a specific inclination to tuberculosis. This view derives support from those well-known sad cases where all, or almost all, of the children of a family succumb more or less rapidly to tuberculosis, after having reached, apparently in perfect health, the second or third decade.

Very often indeed the whole physical constitution of descen-

dants from tuberculous parents is so characteristic that we speak of a tuberculous habit of body, or diathesis—tall stature, long and flat thorax, overhanging shoulders, weak muscles, a poor general state of nutrition, a small heart, narrow bloodvessels, irritability of temper, and limited nervous endurance.

An incontestable fact is also the frequent hereditary transmission of a predisposition to mental disturbances and nervous diseases from one generation to another. What is characteristic in these cases is the extraordinary diversity of forms which the disease assumes, and in which the inherited degeneration or deficiency of the nervous system becomes apparent. All kinds of nervous disease may be noticed, from light manifestations of irritability, eccentric tendencies, and hypochondriasis, to the severest forms of epilepsy, insanity, and idiocy.

It cannot be sufficiently emphasized how injurious the abuse of alcohol is to the succeeding generation. This harmfulness of alcohol manifests itself, on the one hand, like that of other poisons, by a generally impaired vitality, by want of development, and diminished resistibility in the child, and also especially by a severe derangement of the nervous system, which is apt to assume the most variable forms.

(*e*) *Inherited Defects of the Germinal Cells.*—Certain morbid predispositions are inherited from generation to generation, and are doubtless based upon some specific defect in the embryonic elements. It is, however, particularly worth mentioning that a link in the chain of the generations may now and then escape the disease, as, for instance, when grandchildren show the same defects as their grandparents, etc. (atavism).*

Here, again, mention must be made above all of the mental and nervous diseases which often cling tenaciously to some families. In all the severe cases of inherited predisposition the degeneration of the germinal elements is already evidenced

* See the next article.

by outwardly noticeable anomalies, the so-called signs of degeneration. Hereditary from generation to generation is, further, a predisposition to certain metabolic disorders ; this is particularly the case with gout and also with jaundice, renal calculus, diabetes, and other diseases.

There is also an inherited predisposition to cancer, to premature apoplexy, to emphysema of the lungs, and to certain skin diseases. It also seems that a tendency to tuberculosis can be hereditary through several generations.

A most remarkable phenomenon is the hereditary transmission of certain malformations which affect either single organs or extremities only, or the entire body. To this category belong the presence of supernumerary fingers or toes, hare-lip, cleft palate, non-development of the female breast, dwarfish or gigantic stature, myopia, colour-blindness, hereditary cataract, warts, birth-marks (nævi), progressive deafness, deaf-mutism, hæmophilia, etc.

(*f*) *Consanguinity.*—It is in the hereditary transmissibility of certain predispositions to disease and malformations where the danger of procreation among blood relations lies. Such procreation is not *per se* injurious, or only so when it is continued through many generations, in which case the marriages may prove sterile. The disadvantage is that near relations possess the same inherited predispositions, and that a combination of these injurious influences may attack the embryo. On the other hand, there is an unfavourable element in the union of two individuals who spring from races too wide apart, as is proved by the limited fruitfulness of such marriages like those between Jews and Christians.*

V. Choice of Husband or Wife.—The choice of a husband or wife is therefore an exceedingly serious matter. But there should not be any exaggeration about it. No one is perfectly normal and entirely free from inherited predisposition to disease. Undue anxiety would result in there being no marriages at all. It must also be borne in mind

* This subject is dealt with at greater length in a separate article.

that, just as in certain families morbid tendencies increase (degenerative heredity), so in others they diminish; that, by a suitable mode of life, it is possible to arrest certain predispositions in certain individuals (this applies, for instance, to mental diseases and tuberculosis in a very marked manner); and, particularly, that, by a continued pairing with descendants of healthy families, abnormal predispositions may be annihilated altogether, provided always that the degeneration of the germinal elements has not gone too far.

We may therefore lay down something like the following as a rational guide:

People afflicted with serious malformations, degenerates such as idiots, imbeciles, lunatics, epileptics, drunkards, habitual criminals, and chronic sufferers such as tuberculous persons and syphilitics in the secondary stage, should absolutely be excluded from procreation. Equally unsuitable as procreators are individuals whose physical development is not complete, or whose sexual character is imperfectly marked. It is particularly necessary to dissuade from marriage women with poorly developed breasts and hips, women who have never menstruated, or menstruated irregularly, and women with ill-developed and imperfect pelves, as a consequence of rickets. In fact, only such persons should beget children as are perfectly healthy, strong, and well nourished. Individuals who are either too young or too old are unsuitable for procreative purposes.

It is essential to make inquiries into the history of the ascendants of persons about to marry. Important above everything in this connection is the physical constitution of the parents and of the brothers and sisters. But we must try to go as far back as possible, especially where the antecedents of the parents and of their brothers and sisters, as well as those of the brothers and sisters of the candidate for marriage, are not quite satisfactory. The further back the anomalies and morbid predispositions are demonstrable among the ascendants, the more frequently they have occurred among

the members of any one generation, the more marked those abnormalities and signs of degeneration are, so the more the individual in question is himself or herself predisposed, and the probability greater that he or she will be equally affected or transmit that predisposition to the subsequent generation. If the particular abnormality or degenerative sign is serious, procreation must not take place under any circumstances, even if the individual in question may for the time being appear to be in perfect health. The more insignificant the hereditary susceptibility, both as regards the nature of the abnormality and also its degree, the more easy it will be to permit the marriage or procreation respectively, so long as the individual concerned may be regarded as normal. The decision will often be extraordinarily difficult and fraught with the most serious responsibilities. In any case it will be necessary when giving the permission to the individual concerned to take great care that the other partner descends from a stock in which the same hereditary predisposition is not present, and that the married couple should in their mode of life and in the procreation of children take every precaution calculated to counteract the hereditary morbid proclivity. Marriages between blood relations should always be opposed.

The choice of husband or wife is, however, of importance not only from the point of view of the expected offspring, but also from that of the other partner. Particular attention must be directed to the danger of transmission of acute and chronic infectious diseases from husband to wife or *vice versâ*. In practice it is principally tuberculosis and venereal diseases —gonorrhœa and syphilis—which come into question. As regards the former, it is at least necessary to warn against the great risk of infection if it is not possible to prevent the marriage altogether. Persons who have suffered from syphilis or gonorrhœa must under no circumstance marry, or indulge in marital intercourse respectively, until they are assured by their medical advisers that they are no longer contagious.

No experienced practitioner will allow a syphilitic individual to marry and beget children before the expiration of at least three—or better still, four—years from the commencement of the illness, and then only if the treatment has been a thorough one, and no symptoms whatever have shown themselves for at least one year. As to gonorrhœa, there is hardly a medical man who does not know from his own observation that when this disease has once attacked the internal female organs it is practically incurable, and that the chronic condition in the male may continue for years with such slight manifestations that it is possible only by very frequent and most searching examinations to obtain conclusive proof of its disappearance. It is well known that such chronic and hardly recognisable gonorrhœas are capable of producing in healthy women most virulent attacks of the disease.*

With regard to the mode of life of married individuals, it is clear that they must consider their health not only for their own sakes, but they must avoid everything that is likely to injure it for the sake also of the expected offspring. They must refrain from that constant round of pleasures of which unmarried people are so fond, and also from the habitual indulgence in alcoholic liquors or other narcotic substances.

Tight-lacing is an objectionable practice, as it may act injuriously, especially on the embryo.

All the circumstances which preclude marriage preclude as a matter of course the procreation of children if they arise after a marriage has taken place.

* For further details on syphilis and gonorrhœa in relation to marriage, the reader is referred to the respective special articles.

III.

CONGENITAL AND INHERITED DISEASES AND PREDISPOSITIONS TO DISEASE.

By PROFESSOR J. ORTH (Berlin).

In order to understand the occurrence and significance of congenital and inherited diseases and predispositions to disease, it is, in the first instance, necessary to know the meaning of the words 'inherited,' 'congenital,' 'disease,' and 'predisposition to disease.' This is the more requisite as medical terminology unfortunately does not in this matter afford us any definite rules and logical conclusions, and as, particularly in the case of the designation 'predisposition to disease' or 'predisposition,' it has often been remarked that where conception is at fault a good name goes a very long way. The well-known saying of Bacon, 'Prudens interrogatio est quasi dimidium scientiæ' might very well be altered into 'Prudens definitio est quasi dimidium scientiæ.' I shall therefore try first to render the ideas intelligible, and will afterwards deal with the occurrence of congenital and inherited diseases and predispositions to disease in general, but with special regard to the question of heredity and its importance in pathology.

The Meaning of 'Inherited' and 'Congenital.'—The words 'inherited' and 'congenital' are often used synonymously, but there is no justification for it, because although everything inherited is also congenital, is does not necessarily follow that everything congenital is also inherited. The opposite of 'inherited' is 'acquired.' Acquisitions are

either extra-uterine or intra-uterine; if the latter they are congenital, but not inherited.

All is congenital that is present in or about an individual at the time of his or her birth. It is not essential that the congenital peculiarities shall be recognisable in the newly-born infant immediately after birth, either by an external or by an internal examination; there may be, to begin with, a latent condition from which the particular abnormality or peculiarity emerges at a subsequent period, perhaps after many a year, and which, though not recognisable at birth, is nevertheless inherent in some shape. This applies to normal as well as to abnormal qualities. Whether a newly-born infant is of the male or of the female sex is under ordinary circumstances visible immediately after birth, but the development of the sexual glands or of the female breast respectively does not take place before puberty; and as to pubic hair or the beard, there is not at birth a trace of them, yet we do not doubt that they are congenital phenomena, and that their origin dates from birth.

Such latency, such an appearance of peculiarities later in life, is not seen only in the development of the sexual attributes or in connection with general conditions, but also in individual qualities, and especially in family characteristics. Certain peculiar family features are at times decidedly recognisable in newly-born or very young children; there are, however, a number of peculiarities, such as the general build, facial expressions, the nature of the hair, and also functional distinctive phenomena and proclivities, etc., which make their appearance at a subsequent period, and as to which no one has any doubt that they are congenital possessions.

The matter is no different as regards disease. It is, for instance, well known that syphilis is capable of producing intra-uterine symptoms which are recognisable immediately after birth, that in most cases undoubted signs of the disease become apparent if not immediately, at least soon afterwards, and that there is consequently a congenital syphilis. But it may also be

considered as a fact that there is a 'late congenital syphilis,' a form of the disease the symptoms of which do not become apparent until perhaps many years later, though its cause must have been latently present in the body of the sufferer from the time of his birth. The same thing may happen with respect to obesity, giant growth, gout, etc.

What is not Inherited.—What is to be regarded as inherited in these congenital phenomena? Surely not that which has arisen in consequence of disease in the fœtus, as for this the maternal organism has no direct responsibility. But I go further still, and maintain that what the fœtus receives from its mother in the course of its development is not inherited. If a mother transmits at any time some acute infectious disease to her child, nobody ever thinks of mentioning the word 'inherited,' so why should it be otherwise when the transmission takes place not during the extra-uterine but the intra-uterine life of the child?

Placental Infection.—There can surely be no difference in the essence of the process because the placenta has played an intermediate part—that is, because the infection is a placental one. Whether it is through the milk that a mother conveys morphia to her nursling, whether it is through a tuberculous udder that a cow conveys tubercle bacilli to her calf, or whether that conveyance takes place through the blood of the placenta, it cannot make any appreciable difference. And if anyone holds the extraordinary opinion that conveyance through the milk is an hereditary transmission, what about the milk of a tuberculous cow that infects with tuberculosis not her own calf, but a strange one, or a human suckling? The essence of infection cannot be any different if under exactly similar circumstances it attacks different individuals. But if conveyance through the milk cannot be called hereditary transmission, why should we speak of such when the conveyance takes place through the blood? Such a conveyance is in reality nothing more than what takes place when an infective agent is transmitted

from one individual to another. Where have we here an hereditary transmission? And how about infection during labour? How far does heredity go, and where does acquisition begin?

There are also general biological reasons why we should not consider as hereditary all that is derived from the mother during intra-uterine life. In the amphigonous propagation of the species the value of the male germ is for hereditary purposes equal to that of the female, for we see how anxiously, if we may use such a term, Nature looks to it that at the fecundation of the ovum the future new creature shall receive just as much chromatin from the paternal as from the maternal germ. Though it is not by any means proved as yet that the chromatin is in any way the carrier of heredity, its behaviour gives us a sure indication as to the general nature of the paternal and maternal potency, of the paternal and maternal inheritance. Were we to admit post-conceptional influence on heredity on the part of the mother, the value of the maternal progenitor with regard to heredity would be quite different from that of the paternal. In such case the mother would be capable of transmitting hereditarily much more than the father. In any case this could happen only in viviparous animals, and particularly in mammals, and not even in all of these to the same extent, because in aplacentals the conditions are entirely different from those in placentals. If in the discharged egg of an animal changes take place in the developing embryo owing to external influences, it is perfectly clear that we have before us not inherited but acquired conditions. Is there any material difference if the same changes occur in an egg while it happens as yet to be situated inside the genital organs of the mother? Tubercle bacilli have been introduced into hens' eggs, and tuberculosis thereby produced in the chicks. This is surely no inherited tuberculosis, and wherein does the difference lie if tubercle bacilli, the syphilitic poison, or other causes of disease are transferred from the mother through

the placenta to a human embryo before its full development? We have no more right in such cases to speak of inherited tuberculosis or inherited syphilis than in the above-mentioned experiments on chickens.

And how about those animals which are oviparous as well as viviparous? Is in their case the possibility of hereditary transmission a variable one, that is, smaller in the offspring discharged with the egg, and greater or more lasting in those that are born in an advanced state of development? No; all that the offspring receives in the course of its development after conception is acquired and not inherited, no matter at what period received, whether intra-uterine or extra-uterine, no matter in which way, whether through the blood, through the milk, or otherwise.

Germinal Infection is not Heredity.—Consequently there can be no question of heredity when the new individual receives something which has been introduced accidentally by the germ cells, if, for instance, a spermatozoon enters into the ovum, which it impregnates, or, in other words, into the future embryo, accompanied by a tubercle bacillus. It is immaterial whether the bacillus adheres to the exterior of the spermatozoon, or whether it lies in its interior, if there is room, provided that the molecular structure of the spermatozoon has undergone no important change. Such cases have been spoken of as hereditary tuberculosis of the fœtus, but without any justification, as the germ cells have not produced the tuberculosis: they were merely the accidental carriers of the infective virus. We may, therefore, speak in such a case of a germinal infection as opposed to the placental infection discussed above, but this can never be an inherited tuberculosis; we might at the utmost speak of pseudo-heredity.

The Meaning of 'Disease' and 'Predisposition to Disease.'—I will now attempt to explain the meaning of the words 'disease,' 'tendency to disease,' or, as it is usually called, 'predisposition to disease,' and this I can do very briefly.

Disease is a process, a vital process, but one deviating from the normal and showing signs of injury. Disease is life, but life under abnormal conditions and with abnormal aspects. Where there is no life there can also be no disease; where there is no disturbance of vital processes showing signs of injury there is also no disease. The external cause of a disease—say, parasites—may be present; there may be an infection, but an infectious disease as a consequence of that infection* does not begin until the parasites occasion disorder in the vital processes, until the latter are injuriously disturbed. It is absolutely necessary to distinguish between the terms 'cause of disease,' 'parasites,' and 'disease.' A man may harbour in his mouth virulent diphtheria microbes without being ill; he has no diphtheria, he is not diphtheritic, although he carries about with him the causative agents of diphtheria, and can make others diphtheritic by conveying to them those causative agents. If there has been in any particular case a congenital transmission of the cause of a disease, we are not justified in speaking of a congenital disease as long as there are no demonstrable morbid disorders of vitality. We can only speak of a congenital infection, because, in my opinion, infection begins with the transmission of active and living parasites.

As to what is to be understood by 'tendency to disease,' or 'predisposition to disease,' opinion is very much divided, as is evidenced by the literature on the subject. In my judgment the principal factors in this connection are the bodily conditions, the peculiarities of the build, of the chemical composition, and of the activity of the organic tissues, and the qualities of the individual constitution.

The human body is not without protection at the mercy of external causes of disease, and particularly of parasites;

* Serious misunderstandings are apt to arise if, as it is often done, no sharp distinction is made between infection and infectious disease, and if the disease, as such, is also called 'infection.' The latter term in reality only means 'contamination.'

on the contrary, it possesses quite a large number of protective agencies, which being to a great extent regulating arrangements, enable it to offer resistance to abnormal conditions of life and to external causes of disease, the tendency of which is to generate disorder in the vital processes—viz., to produce a disease; they enable it to render those causes abortive, and thereby maintain the normal course of the process of life. Everything which prevents that regulation from taking place, every incapacity of the body to resist external causes of disease, therefore every peculiarity of the constitution which renders the latter unable in the struggle of the body with the causes of disease to maintain the normal course of the vital phenomena, every such peculiarity of the constitution may be designated as a tendency, as a predisposition to disease. There need not in this respect be any deviation of individual constitutions from the type of constitution of human beings as a class; there may be also typical general characteristics of constitution, which, though normal in themselves, may represent dispositions to disease in so far as they tend to favour the origination of some particular disease, or in so far as they are not capable of preventing that origination. Such are the predispositions to disease which appertain to the human body as opposed to the bodies of animals; such the predispositions by which various groups of humanity are distinguishable in a regulated manner from one another, according to age, sex, or race. All these predispositions to disease must be congenital and inherited, for they are a result of the phylogenetic development; they have their origin in the general characters inherent in the germ cells.

There is, however, a difference as regards those peculiarities of constitution by which an individual distinguishes himself from the type of man in his normal state, which belong to him personally, and which constitute his own individual personality. These are individual predispositions to disease, which we designate as family predispositions when the same

special peculiarities of constitution appear in several members of one and the same family. Of course, not all individual peculiarities of body, not all family peculiarities of body, are predispositions to disease; they are so only in so far as they do not prevent the production of disease, or in so far as they tend to favour it.

This conception of what constitutes predisposition to disease does not contain anything mystical; it is not beyond the domain of science, and is just as capable of scientific treatment as any other pathogenetic question, though we must admit that our knowledge of the predispositions to disease does not go much beyond a few generalities.

Congenital and Inherited Diseases.—In coming now to the general answer to the question whether there are congenital diseases, and how much heredity has to do with them, it is not necessary for me to mention that there are such diseases, as this is so well known. But it is highly probable that even in those congenital diseases which are of germinal origin heredity in a scientific sense must, after what has been said above, be excluded, inasmuch as it is almost exclusively infectious diseases that come into consideration. It would be possible to speak of an inherited disease only where one or both of the germ cells were specifically diseased; but this is hardly likely ever to occur in practice, seeing how improbable it is that diseased germ cells could give life to a regularly developing embryo. Nevertheless, the further evolution of an embryonic structure emanating from a diseased germ cell is not altogether impossible, and it is quite conceivable that the general ill-development, the general want of vitality, the dystrophy so frequently observed among the offspring of syphilitic parents, may be due to the fact that the germ cells were somewhat damaged and to a certain extent affected with syphilis. But such a conclusion is by no means necessary, as all these conditions might very well have been produced at a later stage in the fœtal body by toxins arising from the syphilitic virus. The observation

that the danger of transmitting syphilis to the embryo is greater in proportion to the acuteness of the symptoms in the parents may be explained either by a gradually diminishing injurious effect on the germ cells, or by a gradually diminishing virulence of the infective virus.

We may therefore draw the inference that undoubtedly by far the greatest number of congenital diseases are not hereditary, and that in all probability there are no hereditary diseases at all. As regards especially the most important diseases—namely, those due to infection—there are no doubt congenital infectious diseases produced by placental—now and then also, perhaps, by germinal—infection, but no such hereditary diseases.

Congenital and Inherited Predispositions to Disease.—The conditions are totally different as regards the predispositions to disease. The general ones do not, of course, concern us here; we have to consider only the individual and the family predispositions. As we are not thoroughly familiar with the finer conditions—morphological as well as biologico-chemical—of those constitutional peculiarities which must be regarded as the principal predispositions to disease, and which may either date from the first stages of the embryonic structure, or arise at a subsequent period of the development, we are not generally in a position to demonstrate them objectively, but must infer them chiefly from their results and from their action; and such inferences must always be treated with the greatest discrimination. Here we are, however, often confronted with the difficulty that it is not always by any means quite clear what is to be regarded as cause and what as effect, what as predisposition to disease, and what as a consequence of disease. In no other disease is this difficulty so markedly apparent as in tuberculosis.*

Hereditary Transmission of Anomalies and Malformations.—That particular physical peculiarities may be transmitted hereditarily is amply demonstrated by

* This subject is dealt with at length in a special article.

certain anomalies and malformations. Though they are not necessarily diseases or predispositions to disease, they are, nevertheless, pathological conditions, deviations from the normal build of the human body, which we cannot here leave unnoticed, as they are typical of the proper predispositions to disease.

If we hear, for instance, that a whole village in which the inhabitants have intermarried for a long time consisted almost entirely of six-fingered individuals, and that the anomaly commenced to disappear as soon as marriages with outsiders became more frequent, thus introducing fresh germ plasmas, we are obliged to admit that the case must be one of inherited anomaly, though the possibility is not altogether precluded that there were also other factors concerned which must necessarily have been present when the anomaly occurred for the first time.

Influence of the Mother on the Fœtus.— Especial caution is indicated when a change, a new condition, is present only in the mother and the child; there is, of course, nothing hereditary if the change occurred in the mother during pregnancy. It has been asserted, for instance, that scars in pregnant women resulting from injuries have shown themselves in analogous positions on the bodies of the children subsequently born; similar experimental observations have also been reported. Of course there can be nothing hereditary in this, as the whole process has nothing whatever to do with the germ cells, and is, at the most, an intra-uterine transmission; but we are absolutely at a loss to explain it, inasmuch as the fœtal body was already moulded before the injury to the mother occurred, and a communication could only have been possible through the placenta, which communication we can only think of as one of a chemical nature. If we consider that in most of the cases the change in the offspring did not by any means correspond exactly to that in the mother, and that there was only a change of some kind; if we bear in mind how often in recent times surgical operations of various kinds

have been performed upon pregnant women without the fœtuses undergoing any corresponding changes, we should probably feel inclined, in regard to those rare cases where the child has apparently participated in the acquisition of a new peculiarity on the part of the maternal body, to attribute them to accidental coincidence rather than to established relationship.

This applies to an even greater extent in those cases in which the maternal body is not visibly altered, where the mother has received only mental impressions of a special kind, or allowed herself to be influenced by the products of her imagination.

The 'Maternal Impressions' of Pregnant Women.—To the first group belong the so-called 'maternal impressions' of pregnant women. Mental impressions, as a rule of a disagreeable and repugnant nature, received by pregnant women are supposed to be the cause of changes in the external physical form of the children subsequently born, the changes being similar to the agencies which produced the unpleasant impressions in the mothers—similar, but by no means alike, as the similarity is in not a few of the reported cases only very remote.

By far the greatest number of cases of 'maternal impressions' relate to women who have reached the second half of the pregnancy, or, at least, a period when the body of the fœtus has already received its form. Incomplete formation of extremities could therefore at the most be caused by a disappearance of parts already existing; for hare-lip to be produced it would be necessary that the definite formation of the lips already completed should be destroyed and replaced by a condition of an earlier period of development; in a word, it only needs weighing all the circumstances of the case to come at once to the conclusion that a direct correlation is here impossible. The few cases in which the correlation seems to exist are noticed and recorded; others, more numerous, in which the children do

not exhibit anything of a striking nature, are ignored altogether.

Different to these influences upon children in the course of their development are the influences on the germ cells before copulation, which may proceed not only from the mother, but also from the father. As it is changes in the germ cells which come here into question, it is possible for the new individual emanating from them to develop a new quality which is hereditary, seeing that it is based upon alterations in the germ plasma. But how do alterations take place in the germ cells, in the germ plasma?

How do Alterations in the Germ Plasma occur?—These also have been attributed to mental impressions, but how is it possible for a mental impression to produce such a chemical action on an ovum that the individual subsequently emanating from that ovum should exhibit corporeal conditions similar to those of the object which created the mental impression? There certainly are many things in this world of ours which are beyond the grasp of our school-learning; but where there is absolutely no possibility to explain a certain alleged fact, we are surely justified in demanding first that that fact should be demonstrated without the shadow of a doubt. *Post hoc, ergo propter hoc* is no admissible proof, and we are therefore entitled, for the present, at any rate, to doubt the fact of correlationship between mental impressions during, or shortly before, fruitful copulation and special changes in the body of the child.*

More within our comprehension is another possibility—namely, that changes have taken place in the germ cells during the interval between their discharge and their copulation, through the action of chemical agencies. It has been asserted that otherwise sane and sober parents may produce mentally deficient, idiotic, or epileptico-idiotic children if they have sexual intercourse when in a state of drunkenness.

* Some curious details of interest to the student of biology will be found in the large edition.

Inherited insanity does not therefore play here any part—for the parents are not insane—but a newly-arisen mental disorder supposed to be due to an acute alcoholic intoxication. There certainly is nothing against the supposition that the alcohol which is scattered all over the body may penetrate also into the germ cells, and produce in them molecular changes which affect particularly those parts from which the brain of an eventful fœtus evolves. It is not inconceivable that this disturbance in the germ cells may, like other phenomena of an acute intoxication, be of a temporary character, and that permanent injury is caused to the descendant only if copulation takes place before the effect of the alcohol has disappeared, whereas if it occurs when this effect has passed away the fœtus suffers no consequences. It is thus, perhaps, that we can explain the circumstance that the evil results of sexual intercourse during intoxication may occur, but that they do not necessarily occur in every case. It would still, however, remain unexplained how it is that the disturbances in the embryonic structure are not equally of a temporary nature, and why they become permanent. Some may even doubt whether the parents were really otherwise perfectly sane, and be inclined to think that the difference in the results ought not to be attributed so much to the extent of their alcoholic intoxication as to the degree of their sanity, which was not, perhaps, without its blemishes. In any case, it is not possible to speak of inherited alcoholism, as it is only degenerative changes which come into consideration, which, even if they are hereditary, are only remote consequences of the effect of alcohol, but not alcoholism as such.

Impregnation.—Another remarkable occurrence which must of necessity depend upon changes in the maternal germ cells, if it is altogether more than mere chance, is designated by the name of impregnation. It is especially breeders of thoroughbred dogs and horses who think that they have observed that male animals exert an influence, not only upon

their own offspring, but also upon the offspring resulting from subsequent copulation with any other male, to such an extent that, if a thoroughbred female is once covered by a mongrel male, subsequent copulation with thoroughbred males is not productive of thoroughbred offspring, because of the influence still exercised by the first male. To my knowledge, similar observations of a definite character have not been made with respect to man, and I have not heard, for instance, that it has ever happened that the children of a woman married for the second time have borne any resemblance to her first husband; nevertheless, the following very extraordinary case has been reported: A man with an abnormality of the genital organs, which had already shown itself in three generations, married a woman of a healthy family, and not related to him, who bore him three children, all of whom exhibited the same malformation, transmitting it in part eventually to their descendants. The same woman, though not hereditarily affected, married subsequently another man, who was also healthy and not hereditarily affected, and bore him four children, every one of whom exhibited the malformation of her first husband. The offspring of two of these children were normal, but some of the children of the other two presented the abnormality. Now, how can we explain such an heredity, if we may call it so, in the descendants of another man? There is no need to say that neither imagination on the part of the mother nor manifold fecundation will here serve as an explanation. The only conceivable possibility is that spermatozoa from the first husband, which never reached any ova, dissolved themselves in the woman's body, and became, so to speak, part and parcel of her, thus producing alterations which affected also the germ cells present in the ovaries, and bestowing upon them the bodily peculiarities of the husband. We can conceive this process either as a direct causation brought about by the local relations between the blighted spermatozoa and the ova enclosed in the ovaries, or we may suppose that the maternal body undergoes a change to begin with, and that

this change is afterwards in some way transferred to the germ cells contained in the ovaries.

Hereditary Transmission of Acquired Peculiarities.—We are thus approaching the great and important question as to the relations existing between the body and its single parts, on the one hand, and also between it and the germ cells contained in the genital glands on the other—a question which is intimately and indissolubly connected with that of the hereditary transmission of acquired peculiarities. Can an individual transmit hereditarily all that he has acquired, without any exception, or are there any limits to such a transmission? This is a question which has been very much discussed during the last thirty years.

According to what has been said above, every hereditary transmission implies a participation of the germ cells. New acquired peculiarities can only be so transmitted if the germ plasma has undergone a corresponding change. An alteration in the germ plasma is therefore a necessary preliminary condition of hereditary transmission of acquired peculiarities. Continuity of the germ plasma, uninterrupted transmission of the same from generation to generation on the one hand, and variability of the germ plasma, its capability to experience changes on the other—these are the two poles round which the theory of heredity turns. Every variation in the germ plasma arising in consequence of the variability which it possesses, and which is admitted by all scientists, can be transmitted hereditarily if it is not counteracted by other agencies. It is obvious that newly arisen variations are more subject to such counteractions than those which have existed for some time and become more firmly established. It also seems that the variations which are of no importance persist, and are transmitted more easily than marked departures from the normal type. But whether the change is great or small, whether it persists or whether it disappears soon, every variation in the germ cell is something new, something that did not exist previously in the germ plasma of the ascendant from

whom the inheritance proceeded, something contrary to it, something acquired. It is certainly strange that in germ variations also a certain regularity is noticeable, that certain typical malformations are constantly recurring in the same manner; but this may perhaps be explained in this way, namely, that not all the parts of the germ plasma are equally susceptible, equally variable, and that certain external causes constantly affect in the same way certain parts of the germ plasma.

Primary and Secondary Germ Variation.—It is obvious that, in order to comprehend fully the nature of these processes, it is necessary that we should be acquainted with the manner in which the external agencies that produce variations by influencing the germ plasma act: whether they have an immediate effect upon the latter—that is, whether they produce a direct variation in it (primary germ variation) —or whether they cause in the first instance a change, a variation, in the bearer of the germ plasma, the soma (primary soma variation), which, in its turn, influences the germ plasma, thus giving rise to a secondary germ variation. Between them stands the case where the external agencies produce simultaneously a variation in the soma, and a corresponding one in the germ plasma, a case which can be separated from the second alternative only with some difficulty. Both in the second and middle cases it is possible, where correspondingly altered descendants emanate from the germ plasma, to speak without any hesitation of hereditary transmission of acquired peculiarities, because the descendants exhibit the same variation as their immediate ascendants. In the first case, however, the circumstances are different. There the soma of the bearer or of the generator of the germ plasma shows no alteration, and such alteration only appears in the body of the descendant emanating from the germ plasma primarily altered. In a former work on the origin and hereditary transmission of individual characteristics, I have proposed that this kind of transmission should, in considera-

tion of the soma, be designated as hereditary transmission of indirectly acquired peculiarities, in contradistinction to the other kind, the hereditary transmission of directly acquired peculiarities. In the first case, the transmission has not, as in the second, been effected by the soma directly, and it can only attain a somatic appearance if the altered germ cell impregnates, or is impregnated by, another, and proceeds towards further development.

Primary Germ Variation through Amphimixis.—In the production of primary pathological germ variations amphimixis plays a very considerable part. To begin with, the combination of the two germ plasmas is alone capable of giving rise to new conditions, as is amply proved by the cross-breeds of both human and animal races. How different the cross-products may turn out, both physically and mentally, may be seen, on the one hand, in the offspring resulting from the union of individuals belonging to different European nations with individuals belonging to the same coloured race (English mulattoes in Jamaica and French mulattoes in Guadeloupe are totally different from one another, both mentally and physically), and, on the other, in the different cross-results arising from the different arrangements in the sexes of the same races—a white man with a coloured woman produces quite a different offspring to that of a white woman with a coloured man. Experiments on animals also show that the wider apart the germ cells are from one another with regard to their origin, the more unsuitable they are for the purpose of procreating a healthy and vital cross-breed, which is in its turn capable of reproduction. These cross-products are, in consequence of their double racial origin, pathologically-inclined creatures, but such occur also among the offspring of unmixed unions as the result of the copulation of unsuitable germ cells.

Marriage among Blood Relations, and Potential Heredity.—It is obvious that near relationship of the germ cells does not, as a matter of course, render them unsuitable

for copulation. In-and-in breeding, or marriage among blood relations, is therefore, as such, not of very great importance as a cause of the occurrence of pathological characteristics, and there are numerous cases, both in animals and human beings, where copulation by very near relations has resulted in the procreation of absolutely healthy, well-formed and thoroughly reproductive descendants. If, among the offspring of incestuous intercourse, insanity is occasionally observed, this is not due so much to the near relationship of the generative cells as to the probability that the incestuous parents were mentally deficient, and that the incestuous act was a proof of this deficiency. In such cases it is not difficult to suppose that the insanity, as such, was hereditarily transmitted.

There is no doubt that the danger of marriage among blood relations lies principally in the circumstance that it occasions an accumulation of unfavourable hereditary predispositions in one and the same individual (potential heredity).

Primary Germ Variation in the Free Germ Cells.—Irregular union of the germ cells has also been regarded as a cause of new and abnormal conditions. Thus it has been asserted that malformations may ensue in consequence of the entrance of more than one spermatozoon into the same ovum. Thus the possibility has recently been suggested that certain tumours may result from a double impregnation of this kind, in which case the incomplete embryo arising from the secondary impregnation is surrounded by the properly fecundated ovum. The circumstance that the male as well as the female germ cells may, after leaving their places of origin, remain for some time in the genital ducts of their bearers, or even in the genital duct of the other individual, and that they must travel a certain distance before reaching copulation, makes it possible for variations to arise in them during this interval without any direct interference on the part of the parental body. New peculiarities may

thus be acquired, which only become manifest in a corresponding alteration of the soma if the germ cells undergo further development. As I have already explained, I do not think it likely that such germ variations may be produced by mental impressions or by simple imaginary representations, but I have also pointed out that they may be caused by chemical action. If what has been said above on the possible results of intercourse during an attack of drunkenness is correct, the insanity exhibited by the descendants must be capable of hereditary transmission, seeing that it springs from the germ cells, and that it is based upon an alteration in the germ plasma. If the change is merely one of a degenerative character in consequence of altered nutrition after the discharge from the germ glands, and of other external conditions, disorders may arise that are perhaps the cause of miscarriages, for which a plausible explanation is wanting, and, where the disorders do not go beyond a slight extent, they produce predispositions to disease in the descendant born alive, which, as they are due to an alteration in the germ plasma, are also capable of being hereditarily transmitted. But these are all purely hypothetic theories, and I am not in a position to adduce any proofs of the existence of such primary germ variations and of indirectly acquired somatic peculiarities connected with such variations.

Primary Germ Variations in the Germ Glands.—It has already been pointed out that primary germ variations may arise also in germ cells which are as yet contained in the germ glands. I include here the disturbance in the developmental faculty—up to complete sterility—of the generative cells of wild animals when they are kept in captivity—that is, under external conditions totally different to those they were previously accustomed to. I consider that the similar conditions occurring in the human female as so-called climatic disturbances (diminution of fecundity up to complete sterility, mostly in the third generation) also belong to this class, though the abnormal external conditions apply,

not only to the ova, but to the whole of the body, and there is a possibility that what takes place is not a primary germ variation, but a secondary one, which has been caused by a previous alteration in the soma.

Similar doubts arise when considering the question of chronic alcoholism in relation to mental disorders. Some alienists attach considerable importance to chronic alcoholism as a cause of insanity, not only in the drinker himself, but also in his descendants, and we may well ask whether the latter have inherited an acquired abnormality. Has the drunkard really become insane as a consequence of alcoholism, or was the alcoholism a consequence of deranged mental activity? In the latter case it would not be very difficult to regard the insanity of the descendants as a result of heredity. But if the premiss is wrong—and there are drunkards who are driven to alcoholic excess, not by an inner impulse, but by external circumstances, and sometimes even against their will—the query arises whether it is only an indirectly acquired condition which appears in the descendants, as a result of a primary germ variation produced by the alcohol, such as occurs after intercourse in a state of intoxication, or whether a directly acquired peculiarity has been hereditarily transmitted in consequence of a secondary germ variation in the germ glands, brought about by the alcoholically diseased brain, from which germ variation the insanity of the descendants ensued as a necessary result, resting, therefore, on an hereditary basis.

Secondary Germ Variation.—We have thus come back to the important question which dominates what we generally mean by the hereditary transmission of acquired conditions—namely, the hereditary transmission of new conditions which the soma has acquired—that is, to the question: What are the relations between the body as a whole and its constituent parts, on the one hand, and the germ plasma contained in the germ glands on the other? If a decisive influence can be, or is, exercised on the part of the single

constituents of the soma on the germ cells enclosed in the germ glands which are the bearers of heredity; if there is such a correlation between them that acquired changes in the soma are capable of producing corresponding variations in the germ plasma contained in the germ cells, then it is possible for acquired somatic conditions to be hereditarily transmitted, otherwise there is no such possibility.

Relations between the Body and the Germ Cells.—It is obvious that the germ cells are dependent upon the body for their nutrition. The uninterrupted transference of the germ plasma to an unlimited number of descendants, the phylogenetic eternity of the germ plasma, is necessarily supposed to be based upon its multiplication in every single individual, which multiplication, in its turn, can only go on by means of a continuous nutrition. The question arises whether the body, though it is itself dependent upon an extraneous food-supply, is capable of exercising an alterative influence on the germ cells by providing them with a special kind of nutrient material. I should imagine that there are sufficient reasons for assuming that it is possible by a permanent qualitative change of food to bring about an alteration in the somatic quality, though there must be other factors concerned as well; and it is quite conceivable that, by a corresponding change in the germ plasma, a sort of accommodation to the altered nutrition takes place, thereby creating an hereditary somatic variation. Of course, we must not forget in this connection that a similar mode of nutrition on the part of the descendants themselves may have precisely the same results.

Is it also due, I wonder, to conditions of nutrition that the children of older individuals, whose fecundity is about to expire, so frequently present a feeble constitution, and that they so often perish from want of vitality? Who can say that what we see in these cases is only a result of a regularly recurring evolution of the germ plasma, or that there do not exist also other relations?

Undoubtedly there are such relations between the germ cells and the rest of the body. They are, in the first instance, of a nervous, in the second of a chemical, nature. Both emanate, to begin with, from the germ glands. These produce, by reflex action, nervous processes which are capable, by internal secretion, of influencing chemically most distant parts of the body. But does the body as a whole, do single constituents and organs of it, also exercise a nervous influence upon the germ cells? Can the germ plasma present in the germ cells be definitely influenced by chemical substances which spring directly from the various parts of the body, or are formed secondarily through nervous processes? Who can declare this to be impossible? And who can prove it? The third possible explanation—namely, that in addition to nervous and chemical agencies there are minute physical elements (whether we call them, as Darwin did, 'gemmules,' or by any other name) which are constantly carried by the blood from the smallest parts of the body to the germ cells, and are capable of causing such variations in the germ plasma as will afterwards invest the soma springing from it with peculiar characteristics—is absolutely groundless, and probably at the present time accepted by hardly anybody.

There are consequently many things imaginable with regard to the decisive relations between single parts of the body and the germ plasma enclosed in the germ glands. A certain scientific interpretation by what means variations in the germ plasma may produce in this or that part of the descendants' soma similar alterations, so that they may be regarded as inherited, is not impossible. The possibility of an hereditary transmission of certain acquired peculiarities of the soma cannot therefore in principle be altogether excluded; but then this is, in my opinion, all that can be said. For the rest, the theory leaves us entirely in the dark, and it cannot tell us anything conclusive. Thus, there remains, in answer to the question whether there exists an hereditary

transmission of acquired conditions, nothing but experience, and we must for the present devote our energy towards the elucidation of the facts which tend to show that such a transmission does exist, and particularly of those facts which do not admit of any other explanation.

Hereditary Transmission of Mutilations.—The question whether mutilations of non-vital parts, especially of the extremities or of the surface of the body in general, are hereditary or not, has recently been answered by almost all authors in the negative; and rightly so, considering that no conclusive proofs have been furnished to demonstrate the existence of such an heredity; whereas, on the other hand, numerous weighty observations have been made in human beings, which speak against it.

There is a natural mutilation which has for thousands of years recurred again and again, and which will continue to recur, because it has not become superfluous through hereditary transmission—that is, the rupture of the hymen. There is even no reason for assuming that this little membrane is of any use; on the contrary, it were better if it did not exist, yet it is constantly forthcoming, and it must constantly be ruptured at the first sexual intercourse. If we want an example of a mutilation which is not required by nature, we have one in the circumcision of numerous generations of various nations in whom the prepuce is, nevertheless, as a rule, present again and again, though they are the descendants of circumcised ancestors. We have other examples in the crippled feet of Chinese women, in the artificial deformities of the skull, which have to be produced anew in every fresh generation. These examples are the more important as they refer to young individuals, and because it is said that the tendency to transmit hereditarily-acquired conditions is especially great in young people, and that it gradually diminishes as age advances.

Nevertheless, the last word has not yet been spoken on this subject, and I think it must be recognised that the

possibility of an hereditary transmission of acquired injuries of the nervous system has been experimentally demonstrated. This can only be explained by supposing that the brain has permanently influenced the germ cells.

The Hereditary Transmission of Functional Acquisitions.—If the possibility of an hereditary transmission of traumatically-acquired new qualities cannot be excluded, there is even more reason to admit theoretically that such a transmission exists with respect to changes in different parts brought about by use or non-use. It is, perhaps, necessary to distinguish here also between important and unimportant parts, between extremities, outer coverings, and internal organs, although it has been maintained, for instance, that the knee callosities present in camels employed as beasts of burden are hereditary, while they are entirely absent in the animals living in a wild state. The productiveness of the udder in cows has been considerably increased by artificial means; on the other hand, there are gynæcologists who incline to the opinion that the breasts in women have undergone considerable hereditary degeneration on account of the growing practice of not demanding any service from them.

Breeders of animals believe also that intellectual faculties acquired by practice are hereditarily transmissible. As regards man, experience has shown that most highly-gifted and talented individuals may spring from circles with very limited mental activity, and *vice versâ*, very often the nearest descendants of most clever men, whose minds were constantly employed, hardly reach mediocrity. But these are, perhaps, exceptions, and we may take it that, as a rule, non-use of a faculty leads to its hereditary diminution and use to its hereditary increase.

Extent of Heredity.—Although, theoretically speaking, the hereditary tendency of the male and female germ cells is exactly the same, it is well known that heredity as a whole, as well as with regard to single parts of the body, is very variable, not only in respect of the two sexes, but also in

respect of different parts of the body in the same sex. As regards both normal and abnormal physical peculiarities, it is sometimes the paternal influence which predominates and sometimes the maternal, so that the children are constitutionally sometimes more like the father and at other times more like the mother. In some cases the paternal heredity seems to predominate at one period of the child's life and the maternal at another, and frequently such a mingling of the two takes places that a similarity in the facial features, for instance, in either direction is altogether absent, and something totally new and different makes its appearance. That certain parts of the body may reveal a striking hereditary character is evidenced by the noses of the Bourbons and the lips of the Hapsburgs, whose male scions have transmitted their facial peculiarities to their descendants though married to women of most varied descent. Abnormal conditions also show a very variable tenacity. Some can be made to disappear only very slowly, others, like certain mental degenerative symptoms, are counteracted more quickly and successfully by the introduction of non-predisposed germ cells.

Crossed Heredity.—The descendants of opposite sex may resemble each other completely, or they may be totally unlike, changing according to sex, or even in the same sex. Sometimes there is a crossed heredity: the sons resemble more the mother, and the daughters more the father. There is no fixed law whatever in the matter, although there may be certain general differences as regards the quality of the heredity on the part of the male and female ancestors respectively. The opinion has been expressed that each of the two procreators plays in heredity a special and definite part. The variability or individuality is influenced by the paternal element, whereas the maternal tends to maintain the average type. The mother transmits a minimum of abnormality: she offers energetic resistance to the disease-producing influence of the father, and finally transforms a severe hereditary predisposition into one of a less threatening type.

Homosexual Heredity.—That heredity does not depend only on the parents, but also on the offspring, and especially on the sex of the latter, is clearly seen in the homosexual character, which is distinctly apparent in some pathological hereditary conditions. Thus, there have been hæmophilic families in which only the male members, but none of the female, showed the hereditary affection. Nevertheless, the important observation has been made in hæmophilia, and in other anomalies as well, that although the women did not present any traces of the inherited peculiarity in themselves, they were yet capable of transmitting the same to their male descendants.

Latent Heredity.—That is a case of so-called latent heredity which proves, particularly as regards hæmophilia, that it is not the disease which is inherited, but a predisposition to it, from which the disease itself need not necessarily result. For it is evident that the women must have possessed the predisposition in question, considering that they were able to transmit it, and that certain special circumstances obviously connected with the female sex prevented it from developing into disease.

Collateral Heredity.—Latent heredity plays a part also in the so-called collateral heredity, in which normal or abnormal conditions were present not in the direct ascendants, but in collateral ones—that is, uncles, aunts, etc. Of course, these collateral ascendants could not possibly transmit anything, and for this reason the term collateral heredity does not seem very appropriate. The explanation is probably that a common ancestor was the transmitter of the peculiarity in question, and that among the offspring affected with the latter, one or two did not exhibit it manifestly; that the parent, male or female, of a particular descendant was one of those who inherited the peculiarity latently, and that he or she was able to transmit it to his or her offspring (directly, or even through one or two generations also latently), in whom it reappeared in full strength.

Reaction, Atavism.—In these cases of latent hereditary transmission there is a so-called return to ancestral conditions; if the ancestors in question were a few generations removed, we speak of atavism. But it is necessary to distinguish between family atavism and phylogenetic atavism. The latter has been advanced as an explanation of all kinds of abnormal conditions, of which it has been said that they have arisen through latent heredity. This applies especially to such malformations as suggest a return to animal species in the genealogical tree.

Corresponding Heredity.—It has already been mentioned that inherited predispositions may not mature fully during the period of intra-uterine development, so that they are not complete at birth, and only show themselves at a later period of life. This condition has been called corresponding heredity, if the predisposition appears in several generations at the same time of life.

Transformism.—Heredity may be homomorphous or heteromorphous. In the former kind a condition appears in the offspring equal to that present in the procreator; in the latter, some other condition, or one different in many ways (transformism). In such a case we also speak of a polymorphous heredity. As an example of such transformism, the observation has been made that the children of fathers suffering from diseases of the chest are frequently subject to nervous or mental diseases. Neither need the heredity confine itself to special parts of the body. It may cause a deficiency in the constitution as a whole. It is possible for a general dystrophy or degeneration to be present and to be inherited. What will emerge from that general unfavourable predisposition, where disease will make its appearance, of what form that disease will be—all this depends, like in the polymorphous heredity of insanity, entirely upon external circumstances. For here also not a disease has been inherited, but only a general inclination to disease.

IV.

CONSANGUINITY IN MARRIAGE, AND ITS EFFECTS ON THE OFFSPRING.

By PROFESSOR F. KRAUS (Berlin).

Introduction.—The question whether marriage between blood relations is injurious has produced a very extensive literature. Most authors answer it in the affirmative, supporting their opinion by the frequent occurrence of disease and predisposition to disease among the descendants of blood relations. Others, again, maintain the contrary, or else acknowledge the injuriousness of consanguineous marriages with so many reservations that they can hardly be said to attach great importance to it as a cause of organic degeneration in the offspring.

This great diversity of views is probably due to several causes. In the first instance, the subject is a difficult and complicated one. It has never been impartially examined into whether marriage between blood relations does not present also at least certain one-sided advantages to the offspring, relating, for instance, to mental development, such as we have reason to expect in accordance with the laws of heredity. Secondly, the examination into the consequences of consanguineous marriages has hitherto been frequently conducted for certain purposes only, or on the strength of restricted statistics or historical observations. It is therefore not surprising that as soon as the results thus obtained were generalized, and made to apply to all conditions without exception, mistakes often arose. The investigation, if it is to

be reliable, must embrace all the points of view, and not only with regard to one particular species of organism. It must comprise the whole organic world, and the marriage of blood relations must be regarded simply as a special case of in-and-in breeding.

In-and-In Breeding (Endogamy).—In opposition to the natural selection which proceeds in nature by means of the struggle for existence, we call in-and-in breeding (endogamy) the further propagation among themselves of the cross-products of various races. The general mixture in one and the same race may be called 'far in-and-in breeding,' that inside of a small circle of individuals of the same race 'near in-and-in breeding.' In-and-in breeding produces refinement; but morbid characteristics common to both parents are naturally also capable by (near) in-and-in breeding of aggravation and accumulation. Consanguineous breeding is entirely subject to in-and-in breeding, for it is evident that the fixation of certain characteristics is effected much more quickly by the pairing of demonstrable blood relations. There is consequently no justification for the stigma of incest which accounts for a great deal of the existing prejudice against consanguineous marriages.

Blood Relationship and its Degrees.—Relationship (blood relationship) is according to the ideas prevalent among civilized nations with respect to family, the connection existing between several persons on the basis of procreation or descent, and therefore on that of community of 'blood.' The term 'blood' means in this connection the sum of all the peculiar characteristics and faculties inherent in all these persons (the breed), but especially all the in-and-in breeding phenomena. The expression 'direct line' means the relationship of those persons of whom one descends from the other. Where individuals are not related in a direct line, but are descendants of the same third person, we speak of 'collateral relationship.' Blood relations born from the same parents are full brothers and sisters; where they have only one parent

in common, they are half-brothers or half-sisters—consanguineous if the common parent is the father, and uterine if the common parent is the mother. The collateral lines are either 'like' when each of them has the same number of removes, or 'unlike' if that is not the case. Cousins, for instance, are said to be related in a like line, uncle and nephew in an unlike line. There may also be 'double relationship,' both in the direct and in the lateral line. In the first case it may arise by the descent of one person from another through two lines of generation (for instance, great-grandfather and great-grandchild, where the latter springs from the union of two cousins). Double relationship is present in the lateral line where two persons are descended from a common third through more than two lines of generation, or from two common ancestors (mothers).

Incest.—We have already defined the pairing of demonstrable blood relations as consanguineous breeding. This consanguineous breeding becomes incestuous breeding if parents pair with their children, or grandparents with grandchildren, brothers with sisters, or grandchildren with one another. When the relationship is not too close we speak of family breeding (marriage between relatives).

Prohibition of Marriage between Blood Relations.—It may be said that the prohibition of consanguineous marriages is the rule not only among civilized, but also among uncivilized nations. With regard to the latter, two very ancient customs connected with marriage are quoted by those opposed to consanguineous marriages—namely, exogamy and wife-capture. As examples are mentioned the prohibition among the Indian Brahmins to marry women belonging to their own tribes, the rape of the Sabinian women, the abduction of Shilo's daughters by Benjamin's men spoken of in the Bible, the preservation of some 'form of wife-capture' by various nations of all kinds of races, the prohibition to marry a person bearing the same family name existing among the Chinese, in the highlands of Scotland, and among the

peoples in the Indian Archipelago, etc., and the severe punishment of incest.

It would be, however, very difficult to prove that exogamy was nothing else but a reform measure intended to put an end to marriages between blood relations when it was found that they have injurious consequences. It probably originated mainly as a result of the oldest condition of society and of the family (communal marriage, polyandry, marriage with the brother's widow, scarcity of women among some tribes, etc.). The matriarchate associated with such a primitive family system would even frustrate the intention to eliminate consanguineous marriages, for half-brothers and half-sisters on the father's side would be able to marry each other, being of different tribes. As a matter of fact, this kind of marriage is seen in different nations, even in such as have already discarded exogamy, or restricted it to portions of tribes; among the Howas, for instance, brothers and sisters may marry each other, but they must not have the same mother.

But it would mean going too far were we to deny altogether that an empirically gained conviction of the injuriousness of consanguineous marriages played here any part. Thus the Arabs are perfectly familiar with this theory of injuriousness. A saying of the Haditt—the sacred tradition of the Arabs—runs: 'Marry from among strangers, so that thou dost not beget a weak offspring.' Later law-books also give expression to this view, for instance, that of Badjuri, the commentator of the Ibn-Quasim. He says: 'Whoever wishes to obtain a noble breed must marry from a foreign country, just as one will obtain good fruit from a branch grafted into a foreign trunk.' Similarly, marriage with a 'bint-amm' (the daughter of an uncle on the father's side) is also exhorted against.

The main reason of the laws enacted by civilized nations against marriage between nearest relatives is probably also not to be found every time in the intention to prevent a degeneration of the species. Legislators, œcumenical

councils, etc., only very rarely express themselves directly in that sense. Pope Gregory I. (about 605) writes, for instance, to the Benedictine monk Augustinus, who was sent out to convert the Anglo-Saxons: 'A secular law of the Roman State permits marriage between the son and daughter of a brother and sister. But experience teaches that the offspring of such marriages cannot thrive.' This opinion of the injuriousness of consanguineous marriages is expressed even more distinctly in the 'Capitularia Regum Francorum.' There it is said that from marriages between relatives spring blind children and cripples, lame and blear-eyed, or offspring affected with other similar infirmities. Nor have the laws of civilized States which have from times immemorial endeavoured to restrict marriages between blood relations proceeded exclusively from anti-sanguinistic motives. This is seen, to begin with, in the great difference of these restrictions as regards the degree of blood relationship. Moreover, there is sufficient direct testimony to prove that these laws have principally been passed for the purpose of preventing prostitution among families, the accumulation of too large fortunes by a limited number of people, etc.

Let us now examine the laws regarding consanguineous marriages which have existed among the highest civilized nations in history, and those which are at present in force in the most important European States. Relationship appears here as a relative impediment to marriage.

Moses prohibited marriage between blood relations of the nearest degrees (with parents, grandchildren, full and half sisters, sisters of father or mother), but was tolerant with regard to marriages between cousins, and between uncle and niece. The Mosaic Law demands categorically that daughters shall marry only from among the family to which they belong; this was an indirect incitement to marriage between blood relations. Among the Spartans marriage between relatives in the direct line was prohibited. In Athens the marriage of near relations was in certain definite cases not

permitted; on the other hand, consanguineous marriage became a duty when a citizen left only an heiress, as the latter was in such a case compelled to marry the nearest of her relatives, so that the fortune should remain in the family. The Roman Law contained prohibitions of marriage between ascendants and descendants, between persons standing in the 'respectus parentelæ' (the relation between uncle or aunt on the one side, and nephew or niece on the other), and between brothers and sisters.

Canon Law introduced severer regulations and prohibited every marriage in the direct line between ascendants and descendants, and in the collateral line not only marriages between brother and sister and between cousins, but even those between removed cousins (sobrini) up to the sixth degree.

Since the eighth century the Church has endeavoured to restrict further still marriages between blood relations, and prohibited the same gradually up to the seventh degree of the Germanic calculation of relationship, which differs from the Roman method in that it does not, like the latter, include the necessary number of births for the creation of the relationship, but only the births of one side (and if the two are not alike, those of the longer side) up to the common ancestor. If, therefore, two persons are according to the Canon Law reckoning of the degree of relationship ('computatio canonica,' or really 'computatio Germanica') related to one another in the seventh degree, they are according to Roman Law reckoning ('computatio civilis') related in the fourteenth degree. Canon Law thus permitted marriage from the fourteenth degree of Roman computation. Innocent III., however, restricted again (1215) the prohibitions up to the fourth degree of canonical computation, and this law is at the present day in force in the Catholic Church; but dispensation is (easily) obtained for the third and fourth degrees, and even for the second. According to Protestant Church Law the direct line is in all cases an annihilating,

indispensable, and public impediment to marriage; the collateral line is so in the first degree—that is, with respect to brothers and sisters. There also used to be a dispensable impediment to marriage in the case of 'respectus parentelæ.'

The Koran prohibits marriages between relations.

The German Imperial Code (Deutsches Reichsgesetz) of 1875 recognises the following impediments to marriage: Relationship in the ascending and descending line, the relationship between full and half brothers and sisters. Marriages between cousins, between uncle and niece, and between aunt and nephew, are by German Law distinctly permitted. In Russia the secular legislation is like that of Canon Law (previous to Innocent III.), and it forbids marriage between blood relations up to the seventh degree. In Switzerland marriages between cousins, uncle and niece, and aunt and nephew, are distinctly prohibited—that is, without dispensation. In Austria also these marriages are prohibited; but among the Jewish subjects of that country marriage between cousins is allowed. In England, France, Italy, Holland, and Roumania marriages between relatives of the third degree (uncle and niece, aunt and nephew) are either prohibited altogether or permitted only by dispensation; but those between relatives of the fourth degree (cousins) are permitted.

Modern legislations, therefore, differ materially on the point; the two extremes are formed by the German and Russian Laws.

Historical and Ethnographical Remarks on Endogamy and on Marriage between Relations (Brothers and Sisters).—With regard to the enormous extent of our subject, and indirectly also with regard to its importance, we can learn something from historical observations.

Where no in-and-in breeding is adopted no distinct types of animal or human races are produced, and absolutely noble races can only be preserved by incessant breed selection.

On the other hand, the consequence of long-continued near in-and-in breeding is a growing tendency to degeneration. The bad influences become apparent, as a rule, very slowly, and only in the course of several generations; for this reason they frequently escape observation in a single generation.

Historically, it appears that man has always practised in-and-in breeding, unless special causes making the struggle for existence vastly severer (over-population, geological disturbances, etc.) produced temporarily a complete interruption. It would even seem that civilization has constantly gone hand-in-hand with the satisfaction of the in-and-in breeding desire prevalent among the tribes and nations which made their mark in history, and also with the existence of in-bred castes and an avoidance of extensive cross-breeding.

But as a complete suppression of the natural selective instinct leads finally to bodily and mental deterioration, mankind in general would not make any marked advance without the intermixture of civilized nations with others physically superior to them, though culturally on a lower level. The effect of such an intermixture is in the first instance the conservation and regeneration of the physical strength of the races, and in the second a transformation of mental faculties. Where two distinct races intermix the result is at first something heterogeneous. Some original characteristics, however, are not altered, but transmitted to the offspring, and the tendency of the latter to revert to parental forms lasts for some time. The formation of extreme qualities is also delayed. But after having conquered this reversion, and after a short retrogression in the state of civilization, later generations attain higher degrees of culture comparatively much more rapidly.*

* The classical endogamous nations of ancient times are, above all, the Egyptians, the Jews, and the Aryan Indians. The whole national State and legislation of the Jews were based upon the principle of in-and-in breeding. The descendants of the tribe of Levi became the leading caste. But as the priests had no share in the inheritance of Israel, they were not as completely separated from the people as other

Attention has been called to the fact that there is everywhere, and especially in rural districts, a far greater amount of blood relationship and common ancestry than one is generally inclined to admit. The bondage of former centuries did not only mean an attachment to the soil, it also compelled marriage with fellow bond-servants of the opposite

---

ruling castes, which on account of the riches they acquire are a class absolutely apart from others. The first-born from among the people belonged to the Lord, and had to be redeemed ; they seem, therefore, to have been destined to make up the full number of the Levites in case of the diminution of the latter. Provision was thus wisely made for a necessary selection and for fresh blood. The duty of Israel to keep themselves holy by strong seclusion from everything pagan became more and more a dogma. The Exile, like the sojourn in Egypt, was a practical school of strict separateness. The laws relating to in-and-in breeding underwent codification after the return from the Babylonian Captivity (944 B.C.). The community assumed the obligation to prevent all mixed marriages with individuals not belonging to it. Women and children belonging to foreign tribes were turned away. That Judaism is still existing at the present day is partly due to the strict retention of the in-breeding principle by the later Pharisees and their successors the Rabbis. With such a comparatively small nation, it almost follows as a consequence that in the post-Exile period, and especially afterwards during the Dispersion, all the Jews in certain places must have been related to each other, and consanguineous marriages must have been quite common. Thus, Tobit advises his son Tobias (at the time of the Maccabæans ?) to take unto himself a wife from among his relations, according to Jewish custom. But it was not permitted that a man should marry his mother, stepmother, sister, or stepsister. After the final dispersion of the Jews there were only two countries in which they could intermix to a relatively greater extent—namely, in Mohammedan Spain and in Poland. In Spain this intermixing took place with kindred Semitic or half-Semitic races. One or two authors are inclined to attribute the circumstance that the Sephardim who sprang from this intermixture are a physically good-looking and mentally capable race to the many marriages entered into with Arabs, etc. On the other hand, the inclination of the Polish Jews to encourage intermixing must have been very small (under King Kasimir the Great the Jews were relatively well off), or else the Ashkenazim would, in spite of an eventual mental retrogression, have become at least physically stronger and finer-looking. This argument is, however, by no means convincing. The Sephardim have had, since the Dispersion, a happier period than any other portion of the Jews, and this cannot have been without some effect upon their race ; whereas, in the case of the Polish

sex who were subject to the same bond-master. As a consequence there arose relationships of unheard-of complication and nearness just among those classes of people of whom one likes to believe that they possess an inexhaustible material of mixed blood. The inhabitants of most rural places in Europe are related among themselves a hundred and a thousand times.*

Jews, not only in-breeding, but poverty and its consequences must have played a very considerable and fateful part in their degeneration. Upon the whole, it may be said that the Jewish nation, which has, on account of its hard struggle for existence, been constantly subject to a certain weeding-out process, and whose leading caste has not kept absolutely aloof from the bulk of the people, has, during its course of a history extending over more than 100 generations, received from its in-and-in-breeding policy more good than harm; at the worst, it may be said to have become a markedly fixed type, with a striking hereditary intensity. The wonder really is that the Jewish nation exists yet at all.

In more recent and modern times the value of pure in-breeding may be judged from the English and the Japanese. On account of its insular position, England is cut off from the rest of the world. The last serious invasion took place 800 years ago; since then only a few thousand Netherlanders and Huguenots (therefore kindred blood) have been added, and thus the strongest present-day race in the world has sprung up. Perhaps the same thing has happened in Japan, where there was also at first a good intermixture; afterwards insular seclusion was an important element in the formation of the race. The Japanese are the most important nation—at least, among the Mongolians.

Instructive in this connection is, perhaps, also the following reference to the Slavs. Qualified historians do not attribute to them, in spite of their great ability, any creative faculty or executive perseverance. The cause is supposed to lie in the fact that the majority of this large race has, through intermixture with another race, lost the physical characteristics of their ancestors (who were identical with the old Germans), and at the same time the mental qualities as well. The decline of prominent racial peculiarities through intermixture is still more apparent in Rome since Sulla and Marius, in the South American States (Peru), etc.

* Those who lay particular stress on the dangers of in-and-in breeding are also not short of examples which seem to prove that the unconscious popular instinct interferes here for purposes of correction. Such an example is furnished by the Iroquois of North America. These Indians are divided into a number of clans which represent smaller nations of the entire nation. Each of these clans elects its

Taking everything into consideration, it would therefore appear that anthropologico-historical observations rather tend to prove that, provided the quality of the material be good, the production of noble races depends largely on the laws of breeding in and weeding out, and only to a small extent upon an admixture of blood, limited both as to time and method. Promiscuity is in any case more dangerous than in-breeding.

History, both ancient and modern, and ethnology teach us that nations and castes have been able to propagate themselves for longer or shorter periods by consanguineous marriages without exhibiting any gross signs of degeneration.

I will take here no notice of the incestuous unions between father and daughter, mother and son, brother and sister, spoken of in the mythologies and legends of uncivilized nations. But it is necessary to mention that among great nations consanguineous marriages were not, and are not, only not forbidden, but that they were, and are, entered into with predilection. The old Egyptians, for instance, knew of no impediments to marriage; their Kings (especially the Ptolemæi) married not infrequently their own sisters; thus Cleopatra was the daughter of a marriage between brother and sister, the grandchild of another similar marriage and the grandchild of Berenice, who was herself both niece and sister of her husband. Among the ancient Persians also brothers and sisters used to marry each other, and so did father and daughter, mother and son. Descent from such

---

own chieftain, its members are heirs to each other, and each possesses its own symbol or totem. As regards marriage, there is a fixed law. Each clan consists of many marriages. These have from times immemorial been arranged in the following way: No young man or maiden marries into his or her own clan. Marriages can, under all circumstances, only be entered into between members of two different clans. Each marriage means, therefore, an addition of fresh blood. Children owe allegiance to their mother's totem (maternal jurisdiction). Father and mother remain in their clan. A similar method of totemism has also developed among the natives of Cooper's Creek in South Australia.

marriage was even a condition of admission to the priesthood. The Athenians likewise permitted marriages between nearest relatives. Finally, the ancient Peruvians also were in the habit of marrying their mothers, sisters, and daughters. They had a law in force with regard to their ruling Princes, according to which the Inka was allowed to marry no one else but his own sister. This is said to have been continued during fourteen generations without any signs of degeneration having been apparent in the last Inka.

These examples do not, of course, prove much. The non-existence of a prohibition is not synonymous with a great prevalence of incestuous marriages among the bulk of the people. But if the numerical proportion of consanguineous marriages is not ascertained exactly, it is also not possible to fix their relation to the physical ability, mental development, and degeneration of a people.

Among the uncivilized nations there are more tribes which live as yet in continued consanguinity (the Baduwis among the Soudanese, the Bataks of Sumatra, the Arabs). Although the small number of inhabitants in the interior villages of the Baduwis, which consist of no more than forty households, have propagated themselves for 400 years by means of the closest consanguinity, they are said to form a powerful race. No deformed or infirm are said to be seen among them. The Baduwis are further distinguished by frankness and loyalty. From very early times it has been the rule with the Bataks to marry their cousins—that is, daughters of an uncle on the mother's side—so that boru-ni-datulang (daughter of the mother's brother) became the title of the betrothed and of the wife. Nevertheless, this nation is also said to be one of the most advanced in the Indian Archipelago. In contrast to the Malays, they possess a powerful, well-formed muscular system. Marriages with cousins have also been the rule with the Arabs for many centuries past.

Other observers, who take up a contrary standpoint, deny the existence of these customs among the Bataks and the

Arabs, but there seems to be no doubt that the peculiar form of government which the Baduwis have practically enforces general blood relationship.

It is said that in Kamtschatka brothers marry their sisters, and the same is reported with respect to the Wangoro. In Goam also brothers often marry their sisters—such unions are, indeed, considered to be most suitable and natural. Further, it is known that among the royal families of Baghirmi, Siam, Burmah, and Polynesia, marriages between brothers and sisters are not uncommon. The Malay group-marriages of brothers, full and collateral, with their sisters, is declared to be the most ancient system of relationship known hitherto, and one which dates from prehistoric times.

But of far greater importance as evidence in support of our point of view are the often-quoted observations made in the commune of Batz (Department of Loire), a village which lies north of the mouth of the Loire on a peninsula surrounded by rocks. The 3,300 inhabitants (1865) of the same have only the most limited intercourse with the outside world. Marriages between blood relations are therefore very frequent among them. In 1864 there were there 46 consanguineous marriages, 5 between full nephews and nieces, 31 between children of full nephews and nieces, and 10 between nephews and nieces in the eighth Roman (fourth canonical) degree of relationship. Nevertheless, the state of health in young and old up to the third generation was an excellent one, and only 2 of these 46 marriages proved sterile, the other 44 resulting in 172 healthy children.

Similar figures are existent with regard to the inhabitants of Schockland (Zuyder Zee), and of a few fishing villages on the Scotch coast.

Unfortunately a great deal depends in all these reports on the subjective tendency of their authors. What little regard for statistics the antagonists of consanguineous marriages sometimes exhibit may be seen from the protest which the Chief Rabbi of France, Isidor, addressed to the Academy

against the assertion of Boudin, that on account of the high frequency of marriages between blood relations among the Paris Jews the number of deaf-mutes among the latter is much higher in proportion than among Christians. Isidor could only find nine deaf-mutes in the whole of his religious community of 25,000 people, and Boudin was able in a statistical rejoinder to prove only a portion of his assertion.

In-and-in Breeding of Animals Living in a Wild State. Experiences of Animal Breeders.—Breeders of animals generally assume that it is possible, by familiar breeding, to fix firmly and rapidly certain qualities in any one breed. If this is, however, continued for too long, and especially in the form of incestuous breeding, a weakness in the constitution supervenes, a sort of overdelicacy becomes apparent in the animals. Male animals exhibit diminished sexual functions, or even impotence; females show decreased fruitfulness and a tendency to abortions, and young animals possess less vitality. Family breeding is therefore looked upon as a successful remedy, occasionally indicated. In order to guard against degeneration through incestuous breeding, breeders use regeneration—that is, an intermixture with the blood of strange animals (of the same race) which possess otherwise the above-mentioned qualities of the brood.

In-and-in breeding plays an important part also in the case of animals living in a free state, on account of their sociability—for instance, among elephants. A remarkable phenomenon among the latter, as also among different other wild animals, is the existence of so-called 'rovers.' These are single and mature male animals, belonging as a rule to no particular herd, which lead a sort of bachelor life. They form, by surprising or otherwise seducing females of other families, a constant reserve army of occasional regenerators.

The Morbid Predispositions and Pathological Conditions in Man supposed to be the Results in the Offspring of Consanguinity in Marriage.—The opponents of consanguineous human marriages base their

opposition principally upon the circumstance that marriages between blood relations, even if the contracting parties appear to be normal, often remain sterile, and that the children of such marriages are often endowed with insufficient vitality.

Some observers have found that 10 per cent., and even 18 per cent., of consanguineous marriages remain sterile; against that, others maintain that consanguineous marriages are productive of slightly more children, and it has even been asserted that they are extraordinarily prolific. This contradiction may be explained in different ways. First of all, propagation depends upon different circumstances; it may, therefore, vary considerably also in continuously in-breeding marriages. It is further possible in such marriages for the unfruitfulness to commence in later generations only, a view not taken into consideration by all authors. Finally, the name may soon disappear, though the number of descendants of such consanguineous marriages is generally large or of normal proportions, because the male members of the family die off and the blood is maintained in the female line only.

As to the vitality of the newly-born children and the descendants of consanguineous marriages, we may say that we know nothing definite.

As results of marriage between blood relations have also been alleged all kinds of degenerative phenomena, especially blindness, deaf-mutism, idiocy, insanity, malformations, and a number of eye diseases.*

Statistics.—Whether consanguineous marriages are really injurious and productive of the above-mentioned ill results can obviously be proved only by statistics on a large scale, but this has hitherto not been done. The older statistical attempts were based upon such a small material, and

* Those who are especially interested in the subject will find further details in the large edition, and, as to eye diseases, they are dealt with in a separate article.—TRANSLATOR.

the conclusions drawn from them are so unreliable, that we are quite justified in leaving them out of account altogether. Recently, however, some most elaborate and instructive tables have been compiled by P. Mayet, who has made use of sources and data which have not, so far, been requisitioned for this purpose, and these we propose to reproduce here almost in their entirety.

Mayet recognised as the first important point the necessity of obtaining information as to the percentage of the population springing from consanguineous marriages. He thinks he can ascertain indirectly the percentage of consanguineous descendants by ascertaining first the number of marriages between blood relations. The number of these marriages is at present being established in France, Bavaria, Prussia, and Hungary. It is also known, though for a number of years only, with regard to Alsace-Lorraine, Saxony, and Italy. Finally, there exists the statistical raw material to establish it for Brunswick, Saxe-Meiningen, Hesse, Anhalt, and Schaumburg-Lippe, and also for Spain.

The Italian Registrar-General of Statistics has his doubts as to the exactness of the reports issued by the communal authorities of Italy, because marriages between cousins do not require there any dispensation.

The conditions in France are clearly seen from Tables I. and II.

Taken together, they give information over a period of forty-three years with regard to 126,945 marriages between blood relations, but it is certain that they do not include all such marriages which have taken place in France. The increase in the proportion during the decade of 1861-1871 (Table I.) may be due to a ministerial ordinance issued at that time, enjoining most careful investigation in that direction. The steady diminution in the average figures (Table II.) may consequently be explained in a similar way, that the regulation in question has gradually been permitted to fall into desuetude. How much of it is due to a possible

recognition of the injuriousness of consanguineous marriages it is difficult to say.

Table III. deals with Bavaria. Here also the average figures become less every five years. The frequency of consanguineous marriages in Bavaria is only six-tenths of that in France.

Table IV. gives the figures for Prussia. They are in striking agreement with those for Bavaria. Mayet gives also a comparison of the two yearly averages for the longer periods (Table IV*a*).

A considerable difference is seen only in the figures (based on small absolute numbers) relating to marriages between nephew and aunt. They are for Bavaria 0·19 per mille, and for Prussia 0·11 per mille.

The circumstance that the figures for Prussia and Bavaria are so similar appears to speak for their accuracy, but Mayet thinks they are certainly too low. The returns of the particulars of marriages are often filled in subsequently from the marriage registers, but the latter have no column with respect to the consanguinity of the parties contracting the marriage. The instructions sent out in Prussia in the year 1874 as to the filling in of the marriage returns are altogether defective. But the numbers of the present Prussian statistics of consanguineous marriages supply at least minimal figures, which are useful in different ways.

TABLE I.

(Source : Stieder, 'Statist. Mittheil. Elsass-Lothringen,' Part XII.)

Consanguineous Marriages in France from 1853 to 1871.

Period.	Marriages Altogether.	Including Consanguineous Marriages.	Per 1,000 Marriages there were Consanguineous Marriages—
1853-1855 ...	834,840	7,804	9·34
1856-1860 ...	1,474,320	14,735	9·99
1861-1865 ...	1,508,914	17,937	11·89
1866-1871 ...	1,663,239	20,896	12·56

TABLE II.

(Source: 'Statistique de la France,' Années 1875-1898.)

Years, Quinquennial Averages, Total Sum, Total Average.	Marriages.					Per 1,000 Marriages of all Classes there were Consanguineous Marriages—			
	Of all Classes.	Between Blood relations.							
		Of all Classes.	Between—			Of all Classes.	Between—		
			Cousins.	Uncle and Niece.	Nephew and Aunt.		Cousins.	Uncle and Niece.	Nephew and Aunt.
1875 ...	300,427	3,483	3,242	178	63	—	—	—	—
1876 ...	291,393	3,313	3,063	179	71	—	—	—	—
1877 ...	278,034	2,962	2,692	178	92	—	—	—	—
1878 ...	279,580	3,165	2,936	182	47	—	—	—	—
1879 ...	282,776	3,047	2,841	146	60	—	—	—	—
1875-1879 Quinquennial average	286,442	3,194	2,955	173	66	11·15	10·32	0·60	0·23
1880 ...	279,046	3,240	3,008	175	47	—	—	—	—
1881 ...	282,079	2,925	2,732	152	41	—	—	—	—
1882 ...	281,060	3,052	2,857	160	35	—	—	—	—
1883 ...	284,519	3,139	2,925	165	49	—	—	—	—
1884 ...	289,555	3,147	2,948	159	40	—	—	—	—
1880-1884 Quinquennial average	283,252	3,101	2,894	162	45	10·95	10·22	0·57	0·16
1885 ...	283,170	3,155	2,969	149	37	—	—	—	—
1886 ...	283,208	3,059	2,801	195	63	—	—	—	—
1887 ...	277,060	3,297	2,476	178	143	—	—	—	—
1888 ...	276,848	2,755	2,552	168	35	—	—	—	—
1889 ...	272,903	2,878	2,552	231	95	—	—	—	—
1885-1889 Quinquennial average	278,638	3,029	2,770	184	75	10·87	9·94	0·66	0·87
1890 ...	229,332	2,456	2,321	101	34	—	—	—	—
1891 ...	285,458	2,769	2,597	146	26	—	—	—	—
1892 ...	290,319	3,167	2,949	142	76	—	—	—	—
1893 ...	287,294	2,664	2,416	213	35	—	—	—	—
1894 ...	286,662	2,596	2,452	144		—	—	—	—
1890-1894 Quinquennial average	283,813	2,730	2,547	183		9·62	8·97	0·65	
1895 ...	282,915	2,526	2,397	129		—	—	—	—
1896 ...	290,171	2,564	2,435	129		—	—	—	—
1897 ...	291,462	2,957	2,762	195		—	—	—	—
1898 ...	287,179	2,834	2,650	184		—	—	—	—
1895-1898 Quinquennial average	287,932	2,720	2,561	159		9·45	8·45	0·55	
The 24 years 1875-1899 together	6,792,450	71,110	65,573	5,077		—	—	—	
Yearly average	283,852	2,965	2,753	212		10·45	9·70	0·75	

TABLE III.

Marriages between Blood Relations in the Kingdom of Bavaria from 1879 to 1899.

Years, Quinquennial Averages, Total Sum, Total Average.	Marriages.					Per 1,000 Marriages of all Classes there were Consanguineous Marriages—			
	Of all Classes.	Between Blood relations.				Of all Classes.	Between—		
		Of all Classes.	Between— Cousins.	Uncle and Niece.	Nephew and Aunt.		Cousins.	Uncle and Niece.	Nephew and Aunt.
1879 ...	35,066	330	283	34	13	—	—	—	—
1881 ...	35,538	315	266	38	11	—	—	—	—
1882 ...	37,801	311	271	25	15	—	—	—	—
1883 ...	35,985	322	272	31	19	—	—	—	—
1884 ...	36,733	321	287	29	5	—	—	—	—
1879-1884 Quinquennial average	36,225	320	276	31	13	8·83	7·62	0·85	0·36
1885 ...	36,496	311	273	27	11	—	—	—	—
1886 ...	37,324	262	231	19	12	—	—	—	—
1887 ...	37,436	242	216	16	10	—	—	—	—
1888 ...	37,809	245	221	17	7	—	—	—	—
1889 ...	39,515	259	242	11	6	—	—	—	—
1885-1889 Quinquennial average	37,716	264	237	18	9	7·00	6·28	0·48	0·24
1890 ...	40,004	271	243	22	6	—	—	—	—
1891 ...	41,400	206	196	9	1	—	—	—	—
1892 ...	41,683	165	158	7	—	—	—	—	—
1893 ...	41,605	246	213	23	10	—	—	—	—
1894 ...	42,623	235	205	21	9	—	—	—	—
1890-1894 Quinquennial average	41,463	225	203	17	5	5·43	4·90	0·41	0·12
1895 ...	43,273	262	235	21	6	—	—	—	—
1896 ...	45,258	245	217	23	5	—	—	—	—
1897 ...	46,481	249	227	16	6	—	—	—	—
1898 ...	48,464	295	269	21	5	—	—	—	—
1899 ...	50,783	203	185	14	4	—	—	—	—
1895-1899 Quinquennial average	46,852	251	227	19	5	5·36	4·84	0·41	0·11
The 20 years 1879-1899 together	811,277	5,295	4,710	424	161	—	—	—	—
Yearly average	40,564	265	236	21	8	6·53	5·82	0·52	0·19

TABLE IV.

(Source: Parts of 'Prussian Statistics' which deal with births, marriages, etc.)

Marriages between Blood Relations in the Kingdom of Prussia from 1875 to 1899.

Years, Quinquennial Averages, Total Sum, Total Average.	Marriages.					Per 1,000 Marriages of all Classes there were Consanguineous Marriages—			
	Of all Classes.	Between Blood relations.				Of all Classes.	Between—		
		Of all Classes.	Between— Cousins.	Uncle and Niece.	Nephew and Aunt.		Cousins.	Uncle and Niece.	Nephew and Aunt.
1875 ...	230,841	1,557	1,413	106	38	—	—	—	—
1876 ...	221,712	1,342	1,227	96	19	—	—	—	—
1877 ...	210,337	1,993	1,773	166	54	—	—	—	—
1878 ...	207,754	1,847	1,695	122	30	—	—	—	—
1879 ...	206,752	1,711	1,522	159	30	—	—	—	—
1875-1879 Quinquennial average	215,479	1,690	1,526	130	34	7·84	7·08	0·60	0·16
1880 ...	208,456	1,685	1,519	133	33	—	—	—	—
1881 ...	209,586	1,660	1,490	144	26	—	—	—	—
1882 ...	217,239	1,622	1,470	116	36	—	—	—	—
1883 ...	220,748	1,702	1,528	148	26	—	—	—	—
1884 ...	225,939	1,685	1,536	120	29	—	—	—	—
1880-1884 Quinquennial average	216,394	1,671	1,509	132	30	7·72	6·97	0·61	0·14
1885 ...	230,707	1,653	1,489	137	27	—	—	—	—
1886 ...	231,588	1,563	1,380	157	26	—	—	—	—
1887 ...	229,999	1,549	1,423	111	15	—	—	—	—
1888 ...	233,421	1,526	1,408	103	15	—	—	—	—
1889 ...	240,996	1,513	1,375	110	28	—	—	—	—
1885-1889 Quinquennial average	233,342	1,561	1,415	124	22	6·69	6·06	0·53	0·09
1890 ...	244,657	1,345	1,238	87	20	—	—	—	—
1891 ...	245,906	1,383	1,249	114	20	—	—	—	—
1892 ...	245,447	1,442	1,282	139	21	—	—	—	—
1893 ...	248,348	1,365	1,262	85	18	—	—	—	—
1894 ...	250,960	1,402	1,293	100	9	—	—	—	—
1890-1894 Quinquennial average	247,064	1,387	1,265	105	17	5·61	5·12	0·42	0·07
1895 ...	253,729	1,360	1,232	109	19	—	—	—	—
1896 ...	264,822	1,376	1,263	96	17	—	—	—	—
1897 ...	274,693	1,409	1,282	103	24	—	—	—	—
1898 ...	280,344	1,227	1,126	86	15	—	—	—	—
1899 ...	287,408	1,393	1,289	86	8	—	—	—	—
1895-1899 Quinquennial average	272,209	1,353	1,238	96	19	4·97	4·55	0·35	0·07
The 25 years 1875-1899 together	5,922,439	38,310	34,764	2,933	613	—	—	—	—
Yearly average	236,898	1,532	1,391	116	25	6·47	5·87	0·49	0·11

TABLE IV*a*.

Bavaria	6·53 per mille	Marriages between blood relations.
Prussia	6·47 per mille	
Bavaria	5·82 per mille	Marriages between cousins.
Prussia	5·87 per mille	
Bavaria	0·52 per mille	Marriages between uncle and niece.
Prussia	0·49 per mille	

Table V. gives the figures for Hungary, which are very much like those of Prussia and Bavaria.

TABLE V.

(Source: 'Ungar. Statist. Handbuch,' 1900.)

Relating to 169,687 Marriages of all Classes in Hungary in the Year 1900.

	Marriages between—		
	First Cousins.	Uncle and Niece.	Aunt and Nephew.
In Hungary in one year	812	49	3
In Croatia in one year	109	10	1
Together	921	59	4
That is, per cent.:			
In Hungary in one year	0·55	0·03	0·00
In Croatia in one year	0·52	0·05	0·00
Together	0·54	0·03	0·00

In England, it seems, marriages between blood relations are much more frequent.

At all events, a conclusion as to the percentage of consanguineous descendants in proportion to the whole of the number of children born in wedlock can be drawn from the percentage of consanguineous marriages in proportion to the number of marriages as a whole, if, firstly, consanguineous and crossed marriages are equally fruitful, and, secondly, if the newly-born infants of consanguineous marriages

(*Continued on p.* 74.)

TABLE

Heredity is proved in

A. On the Number of

Year.	1. Simple Insanity.						2. Paralytic Insanity.					
	Males.			Females.			Males.			Females.		
	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.
1884	2,590	814	—	3,020	995	—	844	136	—	205	31	—
1885	2,638	739	—	3,167	991	—	963	137	—	244	26	—
1886	2,999	912	—	3,390	1,044	—	1,085	173	—	227	37	—
1887	3,037	866	—	3,510	1,101	—	1,102	174	—	242	27	—
1888	3,002	801	—	3,559	1,149	—	1,141	191	—	244	51	—
1889	3,165	977	—	3,783	1,220	—	1,217	237	—	293	50	—
1890	3,438	1,068	—	3,974	1,309	—	1,315	245	—	309	33	—
1891	3,394	1,009	—	3,992	1,292	—	1,467	229	—	394	48	—
1892	3,407	1,034	—	3,039	1,349	—	1,363	276	—	386	57	—
1893	3,789	1,086	—	4,231	1,376	—	1,501	280	—	364	65	—
1894	3,798	1,231	—	4,429	1,445	—	1,488	269	—	461	82	—
1895	3,770	1,242	—	4,317	1,475	—	1,509	328	—	429	93	—
1896	4,098	1,236	—	4,463	1,437	—	1,646	309	—	479	69	—
1897	4,254	1,388	—	4,844	1,633	—	1,592	309	—	426	77	—
14 yrs. together	47,379	14,503	30·61	54,718	17,815	32·56	18,233	3,293	18·06	4,703	746	15·86

B. On the Number of Insane Admitted whose Parents were

1884	27	18	—	25	11	—	3	2	—	—	—	—
1885	24	18	—	22	17	—	3	2	—	—	—	—
1886	17	11	—	21	15	—	7	3	—	—	—	—
1887	12	5	—	20	11	—	3	2	—	1	—	—
1888	20	12	—	19	12	—	3	—	—	1	—	—
1889	20	14	—	19	11	—	3	2	—	1	1	—
1890	23	15	—	16	13	—	8	3	—	1	1	—
1891	25	18	—	19	10	—	5	4	—	1	1	—
1892	23	16	—	30	20	—	8	4	—	1	—	—
1893	33	22	—	30	19	—	6	1	—	—	—	—
1894	27	18	—	19	13	—	10	7	—	1	—	—
1895	25	21	—	28	19	—	6	1	—	1	—	—
1896	27	24	—	29	22	—	8	5	—	1	1	—
1897	35	29	—	29	25	—	12	5	—	1	—	—
14 yrs. together	338	241	71·30	326	218	66·87	85	41	48·24	10	4	40·00

II.

Prussian Lunatic Asylums.

Insane Admitted.

3. Insanity with Epilepsy.						4. Imbecility and Idiocy.						Year.
Males.			Females.			Males.			Females.			
Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	
517	92	—	354	72	—	434	92	—	284	67	—	1884
339	60	—	261	62	—	426	111	—	280	83	—	1885
385	75	—	281	70	—	505	123	—	213	75	—	1886
369	66	—	269	63	—	506	118	—	328	65	—	1887
381	76	—	338	59	—	523	130	—	387	105	—	1888
390	97	—	311	74	—	533	163	—	335	93	—	1889
457	109	—	309	82	—	540	179	—	422	111	—	1890
470	106	—	374	98	—	667	186	—	418	109	—	1891
603	133	—	439	128	—	670	175	—	448	118	—	1892
786	176	—	578	126	—	1,066	352	—	698	201	—	1893
834	237	—	667	194	—	1,090	336	—	765	228	—	1894
810	262	—	583	178	—	924	308	—	614	199	—	1895
847	267	—	550	173	—	964	292	—	640	215	—	1896
981	301	—	582	168	—	976	286	—	659	193	—	1897
3,170	2,057	25·18	5,897	1,547	26·23	9,824	2,851	29·02	6,592	1,862	28·25	14 yrs. together

Consanguineous (as Uncle and Niece, Aunt and Nephew, Cousins).

8	3	—	1	—	—	1	—	—	5	—	—	1884
—	—	—	2	2	—	4	3	—	4	1	—	1885
1	1	—	—	—	—	11	3	—	5	1	—	1886
—	—	—	3	1	—	7	5	—	7	3	—	1887
2	—	—	—	—	—	14	6	—	7	1	—	1888
—	—	—	5	3	—	7	3	—	8	1	—	1889
2	1	—	—	—	—	9	6	—	5	4	—	1890
—	—	—	1	1	—	8	5	—	12	7	—	1891
2	1	—	2	2	—	12	5	—	3	2	—	1892
5	4	—	2	2	—	15	10	—	9	3	—	1893
9	5	—	8	5	—	17	8	—	10	3	—	1894
6	2	—	3	1	—	8	3	—	9	5	—	1895
3	3	—	1	1	—	15	4	—	7	3	—	1896
7	—	—	6	4	—	8	3	—	10	4	—	1897
45	20	44·44	34	22	64·71	136	64	47·06	101	38	37·62	14 yrs. together

possess the same vitality as the children of crossed marriages. As far as I am concerned, I am not at all inclined to admit the parallelism so unrestrictedly as Mayet does. The number of births depends, as we know from experience, upon a variety of circumstances. It is a general natural law that the greater the danger to the descendants in the struggle for existence, the greater the propagative faculty. Epidemics, for instance, tend to strengthen it. Thus Moses says (Exodus i. 12): 'But the more they afflicted them, the more they multiplied and the more they spread abroad.' A natural consequence of strict in-breeding is rather a relaxation of the propagative energy. Jews have at the present day, on an average, fewer children than other nationalities (presumably this is not the effect of in-breeding only), but they also have a smaller infantile mortality and a longer average duration of life. With reference to a small number of consanguineous marriages, calculations with respect to a few hundred of their children have repeatedly been made; but they showed rather larger families. For the present we may therefore assume, at least hypothetically, that among legitimately-born children the offspring of blood relations occur in the same numerical proportion as those of non-consanguineous parents. Mayet, moreover, takes the relative number of consanguineous marriages in proportion to 1,000 marriages as a whole, also as the available relative number for the occurrence of all sexual unions, consequently for the entire number of consanguineous descendants among the population.

In Prussia the minimum number of consanguineous marriages is 6·5 per 1,000. If we take for Prussia, or the whole German Empire respectively, this relative figure with respect to consanguineous offspring, it would mean, with a population of 56·3 millions of the Empire, the very considerable number of 365,950 descendants of consanguineous marriages living among the general population.

In the Prussian lunatic asylums it is always ascertained in

TABLE VII.

(Compiled by Mayet from the preceding table.)

Cases with proved Heredity.

For—	Hereditarily predisposed among—		
	Males.	Females.	Both together.
1. Simple insanity:			
From patients of all classes	30·61% = 100	32·56% = 100	31·7% = 100
From patients whose parents were consanguineous ...	71·30% = 233	66·87% = 205	69·0% = 218
2. Paralytic insanity:			
From patients of all classes	18·06% = 100	15·86% = 100	17·6% = 100
From patients whose parents were consanguineous ...	48·24% = 267	40·00% = 252	45·3% = 257
3. Insanity with epilepsy:			
From patients of all classes	25·18% = 100	26·23% = 100	25·6% = 100
From patients whose parents were consanguineous ...	44·44% = 176	64·71% = 247	53·2% = 208
4. Imbecility and idiocy:			
From patients of all classes	29·02% = 100	28·25% = 100	28·7% = 100
From patients whose parents were consanguineous ...	47·06% = 162	37·62% = 133	43·0% = 150

the case of new inmates whether, and in what degree, their parents were consanguineous. In the published returns of these statistics 'heredity' is entered when the following questions are answered in the affirmative on admission into the asylum: Have mental or nervous disorders, drunkenness, suicide, crime, striking qualities or talents been present in (1) father, mother; (2) grandfather, grandmother, uncle, aunt (*a*) on the father's side, (*b*) on the mother's side; (3) brothers or sisters? The entry 'heredity' means, therefore, in these statistics, not only a transmission of the same mental disease, but much more. An abnormally increased nervous life, either towards excellence or towards decay, and that not only in one of the absolutely nearest ancestors, is sufficient to establish 'hereditary predisposition.'

Tables VI., VII., and VIII. deal with this 'heredity.'

Let us examine now Mayet's table with regard to this

(*Continued on p.* 78.)

TABLE

Heredity is proved in Prussian Asylums on the

C. As

Year.	1. Simple Insanity.						2. Paralytic Insanity.					
	Males.			Females.			Males.			Females.		
	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.
1884	25	17	—	22	9	—	3	2	—	—	—	—
1885	22	16	—	18	15	—	3	2	—	—	—	—
1886	13	8	—	18	12	—	5	2	—	—	—	—
1887	12	5	—	18	9	—	3	2	—	1	—	—
1888	18	11	—	18	11	—	3	—	—	—	—	—
1889	17	12	—	18	10	—	2	1	—	1	—	—
1890	22	14	—	16	13	—	8	3	—	—	—	—
1891	24	17	—	15	8	—	4	4	—	1	1	—
1892	20	13	—	27	18	—	7	3	—	1	1	—
1893	27	18	—	27	17	—	6	1	—	1	—	—
1894	25	16	—	15	10	—	10	7	—	1	—	—
1895	21	18	—	26	17	—	6	1	—	1	—	—
1896	25	22	—	29	22	—	6	3	—	1	1	—
1897	31	25	—	26	22	—	12	5	—	1	—	—
14 yrs. together	302	212	70·2	293	193	65·9	78	36	46·2	9	3	33 3
D. As Uncle												
1884	2	1	—	3	2	—	—	—	—	—	—	—
1885	2	2	—	4	2	—	—	—	—	—	—	—
1886	4	3	—	3	3	—	2	1	—	—	—	—
1887	—	—	—	2	2	—	—	—	—	—	—	—
1888	2	1	—	1	1	—	—	—	—	—	—	—
1889	3	2	—	1	1	—	1	1	—	1	1	—
1890	1	1	—	—	—	—	—	—	—	—	—	—
1891	1	1	—	4	2	—	1	—	—	—	—	—
1892	3	3	—	3	2	—	1	1	—	—	—	—
1893	6	4	—	3	2	—	—	—	—	—	—	—
1894	2	2	—	3	2	—	—	—	—	—	—	—
1895	4	3	—	1	1	—	—	—	—	—	—	—
1896	2	2	—	—	—	—	2	2	—	—	—	—
1897	4	4	—	2	1	—	—	—	—	—	—	—
14 yrs. together	36	29	80·6	30	22	73·3	7	5	71·4	1	1	100
E. As Nephew												
1884	—	—	—	—	—	—	—	—	—	—	—	—
1885	—	—	—	—	—	—	—	—	—	—	—	—
1886	—	—	—	—	—	—	—	—	—	—	—	—
1887	—	—	—	—	—	—	—	—	—	—	—	—
1888	—	—	—	—	—	—	—	—	—	—	—	—
1889	—	—	—	—	—	—	—	—	—	—	—	—
1890	—	—	—	—	—	—	—	—	—	—	—	—
1891	—	—	—	—	—	—	—	—	—	—	—	—
1892	—	—	—	—	—	—	—	—	—	—	—	—
1893	—	—	—	—	—	—	—	—	—	—	—	—
1894	—	—	—	1	1	—	—	—	—	—	—	—
1895	—	—	—	1	1	—	—	—	—	—	—	—
1896	—	—	—	—	—	—	—	—	—	—	—	—
1897	—	—	—	1	1	—	—	—	—	—	—	—
14 yrs. together	—	—	—	3	3	100	—	—	—	—	—	—

Admission of those Insane whose Parents were Consanguineous.

Cousins.

3. Insanity with Epilepsy.						4. Imbecility and Idiocy.						Year.
Males.			Females.			Males.			Females.			
Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	Admissions.	Of which Heredity is proved in—	Per Cent. with Heredity.	
5	1	—	1	—	—	1	—	—	5	—	—	1884
—	—	—	2	2	—	4	3	—	3	1	—	1885
—	—	—	—	—	—	8	2	—	4	1	—	1886
—	—	—	2	1	—	7	5	—	7	3	—	1887
2	—	—	—	—	—	12	4	—	5	1	—	1888
—	—	—	4	2	—	6	3	—	7	1	—	1889
2	1	—	—	—	—	8	5	—	4	3	—	1890
—	—	—	1	1	—	8	5	—	10	6	—	1891
2	1	—	2	2	—	12	5	—	3	2	—	1892
5	4	—	1	1	—	13	9	—	9	3	—	1893
8	5	—	8	5	—	17	8	—	8	3	—	1894
6	2	—	3	1	—	8	3	—	8	4	—	1895
2	2	—	1	1	—	12	3	—	5	2	—	1896
7	—	—	6	4	—	7	2	—	10	4	—	1897
39	16	41·0	31	20	64·5	123	57	46·3	88	34	38·6	14 yrs. together

and Niece.

3	2	—	—	—	—	—	—	—	—	—	—	1884
—	—	—	—	—	—	—	—	—	1	—	—	1885
1	1	—	—	—	—	3	2	—	1	—	—	1886
—	—	—	1	—	—	—	—	—	—	—	—	1887
—	—	—	—	—	—	2	1	—	2	—	—	1888
—	—	—	1	1	—	1	—	—	1	—	—	1889
—	—	—	—	—	—	1	1	—	1	1	—	1890
—	—	—	—	—	—	—	—	—	2	1	—	1891
—	—	—	—	—	—	—	—	—	—	—	—	1892
—	—	—	1	1	—	2	1	—	—	—	—	1893
1	—	—	—	—	—	—	—	—	2	1	—	1894
—	—	—	—	—	—	—	—	—	1	—	—	1895
1	1	—	—	—	—	3	1	—	2	—	—	1896
—	—	—	—	—	—	1	1	—	—	—	—	1897
6	4	66·7	13	2	66·7	13	7	53·8	13	3	23·1	14 yrs. together

and Aunt.

—	—	—	—	—	—	—	—	—	—	—	—	1884
—	—	—	—	—	—	—	—	—	—	—	—	1885
—	—	—	—	—	—	—	—	—	—	—	—	1886
—	—	—	—	—	—	—	—	—	—	—	—	1887
—	—	—	—	—	—	—	—	—	—	—	—	1888
—	—	—	—	—	—	—	—	—	—	—	—	1889
—	—	—	—	—	—	—	—	—	—	—	—	1890
—	—	—	—	—	—	—	—	—	—	—	—	1891
—	—	—	—	—	—	—	—	—	—	—	—	1892
—	—	—	—	—	—	—	—	—	—	—	—	1893
—	—	—	—	—	—	—	—	—	—	—	—	1894
—	—	—	—	—	—	—	—	—	—	—	—	1895
—	—	—	—	—	—	—	—	—	—	—	—	1896
—	—	—	—	—	—	—	—	—	—	—	—	1897
—	—	—	—	—	—	—	—	—	—	—	—	14 yrs. together

heredity (Table VI.). The items in the sum total of Part A. refer to:

	Male Patients.	Female Patients.
Simple insanity	47,000	55,000
Paralytic insanity	18,000	5,000
Insanity with epilepsy	8,000	6,000
Imbecility, idiocy	10,000	7,000

A fairly large material. Near each column of admissions there is a column giving the percentage of hereditary cases.

The table gives in a satisfactory manner the items of those mental diseases where the parents were consanguineous. The information on the point refers to a fairly considerable material:

	Male Patients.	Female Patients.
Simple insanity	338	326
Paralytic insanity	85	10
Insanity with epilepsy	45	34
Imbecility, idiocy	136	101
Together in mentally deranged descendants of consanguineous marriages	604	471

We can see from this, by comparing the percentages on the same side, that the number of those who are hereditarily predisposed is in the insane whose parents were consanguineous much larger, as a rule more than twice as large, than in those who were descended from non-consanguineous marriages. Table VII. gives a clearer view of this conclusion. The comparison between the two relative figures is made easier by taking the relative figure for patients as a whole as 100. We find in the case of consanguineous descendants 218, 257, 208, 150 hereditarily predisposed, against 100 patients of all classes.

Mayet explains, as I believe, these figures quite correctly; the mental diseases arise often on the basis of unfavourable family predispositions. If the same family predisposition is present in both consanguineous parents, the effects of the heredity are considerably increased. In simple insanity, paralytic insanity, and insanity associated with epilepsy,

heredity plays, in the case of consanguineous descendants, a part which has the effect of more than doubling the number of cases. As regards imbecility and idiocy, heredity seems to play a less important part.

Table VIII. gives the data separately with regard to the degree of consanguinity.

TABLE IX.

(Compiled by Mayet from Tables VI. and VIII.)

Cases with proved Heredity.

For—	Hereditarily predisposed among—		
	Males.	Females.	Both together.
1. Simple insanity:			
From patients of all classes	30·61% = 100	32·56% = 100	31·7% = 100
From patients whose parents were cousins	70·2 % = 230	65·9 % = 202	68·1% = 215
From patients whose parents were uncle and niece ...	80·6 % = 263	73·3 % = 225	77·3% = 244
2. Paralytic insanity:			
From patients of all classes	18·06% = 100	15·86% = 100	17·6% = 100
From patients whose parents were cousins	46·2 % = 256	33·3 % = 210	44·8% = 255
From patients whose parents were uncle and niece ...	71·4 % = 395	100 % = 631	75·0% = 426
3. Insanity with epilepsy:			
From patients of all classes	25·18% = 100	26·23% = 100	25·6% = 100
From patients whose parents were cousins	41·0 % = 163	64·5 % = 246	50·0% = 195
From patients whose parents were uncle and niece ...	66·7 % = 265	66·7 % = 254	66·7% = 261
4. Imbecility and idiocy:			
From patients of all classes	29·02% = 100	28·25% = 100	28·7% = 100
From patients whose parents were cousins	46·3 % = 160	38·6 % = 137	43·1% = 150
From patients whose parents were uncle and niece ...	53·8 % = 185	23·1 % = 82	38·5% = 134

Table IX. facilitates the comparison in certain other directions. According to this table it seems that in simple insanity, in paralytic insanity, and in insanity with epilepsy, hereditary predisposition is demonstrable to a greater extent in the offspring of uncle and niece than in that of cousins;

TABLE X.

(Compiled from Table VI.)

Proportionate Number of Patients whose Parents are Consanguineous to the entire Number of Patients of each Form of Disease.

A. Insane of all Classes.

	1. Simple Insanity.			2. Paralytic Insanity.			3. Insanity with Epilepsy.			4. Imbecility and Idiocy.		
	Patients.	Of whom with proved Heredity.	Of whom without proved Heredity.	Patients.	Of whom with proved Heredity.	Of whom without proved Heredity.	Patients.	Of whom with proved Heredity.	Of whom without proved Heredity.	Patients.	Of whom with proved Heredity.	Of whom without proved Heredity.
Males ...	47,379	14,503	—	18,233	3,293	—	8,170	2,057	—	9,824	2,851	—
Females ...	54,718	17,815	—	4,703	746	—	5,897	1,547	—	6,592	1,862	—
Males and females together	102,097	32,318	69,779	22,936	4,039	—	14,067	3,604	10,463	16,416	4,713	11,703

B. Insane whose Parents were Consanguineous.

Males ...	338	241	—	85	41	—	45	20	—	136	64	—
Females ...	326	218	—	10	4	—	34	22	—	101	38	—
Males and females together	664	459	205	95	45	50	79	42	37	237	102	135

The Insane whose Parents were Consanguineous (B), Average per 1,000 Insane Persons (A).

Males and females together	6·5	14·2	3·0	4·1	11·1	2·9	5·6	11·7	3·5	14·4	21·6	11·5

Whilst of 1,000 inhabitants of Prussia, at least 6·47 descendants spring from consanguineous marriages.

it is therefore more pronounced where the relationship is nearer.

It is different with imbecility and idiocy, just as we should expect, considering that in these affections hereditary predisposition is altogether rare.

Subdivision E of Table VIII., which refers to the descendants of marriages between nephew and aunt, shows in the group of Table IX. hardly any cases of insanity. That such unions are in any way protective against insanity is far less likely than that they are (on account of the advanced age of most aunts) much less fruitful.

Table X., prepared by Mayet, gives the proportion of descendants of consanguineous marriages to the entire number of sufferers from the forms of insanity already mentioned, and from idiocy.

From these figures it would appear that the proportion of consanguineous descendants suffering from the respective forms of insanity to the total number of individuals who do not seem to be hereditarily predisposed in the sense explained above is smaller than their proportion to the entire population. Mayet expects, according to the above-given minimum figure of 6·5 descendants from consanguineous marriages per 1,000 of population, to find also 6·5 per 1,000 patients of this class in proportion to the whole number of patients of each class, but instead of 6·5 he gives above—of simple insane, only 3·0; of paralytics, only 2·9; and of epileptics, only 3·5. On the other hand, idiocy stands here differently. The proportion of 6·5 is exceeded, and becomes instead 11·5.

Table XI. serves for the special study of the conditions referring to the children of cousins, and to those of uncle and niece.

This table shows in both kinds of marriages the same results where there is no gross hereditary predisposition to the affections mentioned; as to the three forms of insanity, the children are half as frequently insane as the rest of the

TABLE XI.

(Compiled from Tables VI. and VIII.)

Proportionate Number of Patients whose Parents were related to each other, as Cousins or as Uncle and Niece, to the entire Number of Patients of each Form of Disease.

A. Insane of all Classes.

	1. Simple Insanity.			2. Paralytic Insanity.			3. Insanity with Epilepsy.			4. Imbecility and Idiocy.		
	Patients.	Of whom with proved Heredity.	Of whom without proved Heredity.	Patients.	Of whom with proved Heredity.	Of whom without proved Heredity.	Patients.	Of whom with proved Heredity.	Of whom without proved Heredity.	Patients.	Of whom with proved Heredity.	Of whom without proved Heredity.
Males ...	47,379	14,503	—	18,233	3,293	—	8,170	2,057	—	9,824	2,851	—
Females ...	54,718	17,815	—	4,703	746	—	5,897	1,547	—	6,592	1,862	—
Males and females together	102,097	32,318	69,779	22,936	4,039	18,897	14,067	3,604	10,463	16,416	4,713	11,703

C. Insane whose Parents were related as Cousins.

Males ...	302	212	—	78	36	—	39	16	—	123	57	—
Females ...	293	193	—	9	3	—	31	20	—	88	54	—
Males and females together	595	405	190	87	39	48	70	36	34	211	101	110

The Insane whose Parents were related as Cousins (C)—Average per 1,000 Insane Persons (A).

Males and females together	5·82	12·5	2·70	3·80	9·66	2·54	4·98	9·98	3·25	12·85	19·13	10·26

Whilst of 1,000 inhabitants of Prussia at least 5·87 descendants spring from marriages between cousins.

D. Insane whose Parents were related as Uncle and Niece.

Males ..	36	29	—	7	5	—	6	4	—	13	7	—
Females ...	30	22	—	1	1	—	3	2	—	13	3	—
Males and females together	66	51	15	8	6	2	9	6	3	26	10	16

The Insane whose Parents were related as Uncle and Niece (D)—Average per 1,000 Insane Persons (A).

Males and females together	0·64	1·58	0·22	0·35	1·48	0·11	0·64	1·67	0·29	1·58	2·12	1·37

Whilst of 1,000 inhabitants of Prussia at least 0·49 descendant springs from marriages between uncle and niece.

Taking above under C, 5·87=100, the relative figures are under C=

Males and females together	99	213	46	65	165	43	85	170	55	219	329	175

Taking above under D, 0·49=100, the relative figures are under D=

Males and females together	131	322	45	70	302	22	131	341	59	322	433	280

population. As regards idiocy the conditions are again of a totally opposite character. Here the 'hereditarily non-predisposed' progeny of married cousins are relatively almost doubly, and those of uncle and niece almost trebly, so much affected as the general population.

Mayet has developed this latter part of his statistical computation for the purpose of establishing how consanguinity acts *per se*—that is, exclusively by the absence of outside blood, and quite apart from the aggravation of the effect of heredity. He thinks he can draw the conclusion that in idiocy the disease is produced by consanguinity as such, whereas in the other three forms of insanity consanguinity appears to be rather an advantage in the case of 'hereditarily non-predisposed' persons.

Personally I can admit with absolute certainty only this much, that in idiots too, if in addition to consanguinity the well-known stigmas of hereditary predisposition are also manifestly present, the effect is a vastly greater one. I should further conclude that descent from consanguineous parents does not *per se* predispose to insanity. But, on the other hand, I think it would be going too far to admit, like Mayet, a favourable influence with regard to a large number of diseases. That idiocy may become manifest in the descendants of consanguineous marriages even where the gross (physical, but especially psychical) symptoms of hereditary predisposition are absent, I can easily explain by the law of heredity laid down above, namely, that two similar predispositions, which on account of their slight intensity are not recognisable in the parents individually, combine in the offspring, and acquire by this combination such an energy that they appear as a definite characteristic.

Of great value is Mayet's arithmetical proof, that, of 16,416 idiots admitted in Prussian asylums, only 237 were descendants of consanguineous marriages. Even if we add to this number those idiots who are maintained in their parents' homes, the

proportion is not such as to justify a serious view of the injuriousness of consanguineous marriages. There are probably about 200,000 consanguineous descendants among the inhabitants of Prussia.

In all likelihood the conditions as regards congenital deaf-mutism and certain eye diseases are similar to those regarding idiocy, and there are a few statistical proofs in support of this opinion.

Practical Conclusions.—The above facts and figures cannot be said to contain anything which compels us to see in the results of consanguineous marriages more than an aggravation of the effects of heredity through the consanguinity. But that the absence of outside blood is alone responsible for the degeneration of the offspring it has not been possible to prove with certainty. The advantages of in-and-in breeding in man, or its latitude, we can also not estimate otherwise than by the aid of ethnographical and statistical calculations in association with the laws of heredity; their definite determination is one of the problems of the future.

Theoretically the question is whether consanguineous marriages should be still further restricted, or whether the existing restrictions should be abolished, and the answer must depend largely upon the results of a complete and unbiassed investigation into the consequences of in-and-in breeding. For the present we can say no more than that the matter is undecided.

In practice, however, it is much easier to arrive at a decision. As far as the problematical advantage of consanguineous marriages with regard to the inheritance of definite moral qualities, etc., is concerned, it is best to leave it alone, and to place no reliance upon it. Generally speaking, it is not advisable that blood relations should marry each other, even if they appear to be absolutely free from any hereditary predisposition to disease, and only on very rare occasions ought this rule to be departed from. It must always be remem-

bered that there is a possibility that two similar predispositions which on account of their slight intensity were not recognisable in the parents individually may combine in the offspring, and become so pronounced as to assume a definite abnormal character, and this is, moreover, especially likely to be the case in consanguineous marriages.

V.

CLIMATE, RACE, AND NATIONALITY IN RELATION TO MARRIAGE.

By W. HAVELBURG, M.D. (Berlin).

Part I.

Definition of Acclimatization.—By acclimatization in general we understand the accommodation of any living being to all the imaginable influences of a locality foreign to it or to its nearest ascendants, where the conditions of existence are different from those of its place of origin. This definition of acclimatization applies both to animals and plants. As regards the acclimatization of human beings, it is also required that they should retain in a foreign country, and under altered conditions of life, their previous ability to live physically and mentally, and to continue their activity without any detriment to their health and energy. Where a whole group of individuals of the same class is concerned, a further requirement is that the duration of life and the mortality among them and their offspring shall not be materially different from those prevalent among the natives, and that they shall retain as colonists the faculty to multiply themselves in the usual manner, and to procreate a numerous and healthy offspring capable of resisting the vicissitudes of life, without the introduction of fresh blood or a constant advent of European emigrants. The number of births must exceed that of the deaths.*

* These are the points of view from which scientists look at the subject. In reality, acclimatization depends to a great extent also

It is necessary to point out that individuals as such may find it fairly easy to accommodate themselves to the new conditions, but that a whole group of individuals may not be equally successful. For this reason we have to distinguish between individual acclimatization and class or race acclimatization. It is principally the latter which constitutes the basis of successful colonization. When immigrant colonists succeed in living and multiplying like the natives without any special aids, they are said to be naturalized.*

Acclimatization in the Cold and Temperate Zones.—The acclimatization of people going from the South to the North takes place easily. Plinius and Vitruvius already knew this: 'Quæ a frigidis regionibus corpora traducuntur in calida, non possunt durare, sed dissolvuntur; quæ autem ex calidis locis subseptentrionum regiones frigidas, non modo non laborant immutatione loci valetudinibus, sed etiam confirmantur.' It is always easier to protect one's self against cold than against intense and persistent heat. Besides, there are no endemic diseases to contend against.†

---

upon economic and political conditions. Religious scruples also are often an unfavourable element in the settlement of emigrants, and similarly disadvantageous is the more or less comfortable mode of life to which they were accustomed in the old country. It is chiefly the women who find it very difficult to accommodate themselves to the new household arrangements and the new kind of domestic servants; and then there is the question as to the bringing up and the education of the children. With these points we are not, however, concerned here.

* The French call the natural acclimatization—that is, the one which individuals undergo without any measures on their part—*acclimatement*, and the substance of the measures which are taken for the purpose, principally the hygienic arrangements, *acclimatation*. *Petit acclimatement* they call the individual acclimatization, and *acclimatement de la race* that of a whole class or race.

† Coloured individuals (Indians and negroes) coming in ships right from the tropics into our winter bear the temporary cold very well and without injury. The negroes in the United States have shown themselves highly capable of acclimatization under favourable social conditions. The prosperous population of Lower Canada is to the extent of about 85 per cent. of French descent.

Some authors maintain that inhabitants of the tropics as a rule accommodate themselves more easily to the temperate climates than, *vice versâ*, the inhabitants of the latter to the tropics.*

As a matter of fact, there is no immediate interchange between the populations of the tropics and those of the temperate or cold zones. The inhabitants of the tropics have hardly any desire to emigrate to regions where they have far more work to do under worse climatic conditions. On the other hand, the fertility of the tropics has, ever since the period of oversea discoveries, been a source of great attraction to the civilized nations of Europe.

The examination into the possibility of acclimatization on the part of a race or a nation is, therefore, limited in practice to the question of the acclimatization of Europeans, as it is almost exclusively nations of that continent, and belonging to the white race, that are striving to colonize the territories inhabited by weaker races or possessing sparse populations. The present-day means of communication greatly facilitate rapid changes of domicile.

The Climate of the Tropics.—Travellers who make a temporary stay in the tropics experience there the same discomforts, but to a much greater extent, as are experienced in our latitudes in very hot weather. The enjoyment of the manifold beauties and of the luxuriance of Nature is very much marred by physical fatigue, by intense perspiration, by an easily supervening sense of lassitude, and by the constant fear of succumbing to some more or less serious disease. One has always the feeling that it is not given to man to walk

* Yet this cannot be said to be generally the case. A regiment of negroes stationed in 1817 in Gibraltar was almost totally destroyed by phthisis within fifteen months. The wholesale settlement of negroes in the Antilles was also unsuccessful. The annual average population of the same in the years 1816-1832 was 696,171; of these 345,320 were males, and 350,851 females. To 100 births there were, however, 111 deaths, so that the black population was bound to diminish considerably in the course of time.

among palms with impunity. Immigrants who have to endure permanently the influences of the tropics undergo many changes, both physical and psychical, some of a general kind which affect the whole human organism, and others which are of a more individual character, and dependent upon sex, material circumstances, or occupation. At the beginning of their sojourn in the tropics, immigrants feel well and strong for a short time only; for soon they commence to look weak and pale, their physical capability diminishes, and their previous enjoyment of life lessens considerably.

Injurious Effects of the Tropical Climate.—The experiences of the British, French, and Dutch Governments with regard to their troops, consisting of Europeans and natives, prove by figures what was instinctively felt before by everyone—namely, that the mortality of the European populations in tropical countries is considerably higher than at home, and also very much higher than that among the indigenous inhabitants.*

The morbidity also is considerably higher in these tropical regions.†

The diminished resistibility against the influences of the climate is apparent not only in the immigrants alone, but also in the next generation. According to the principles of heredity, such a rapid change and adaptation could hardly

* The mortality among English soldiers was occasionally four times as great as that of the black troops; and it has even happened that the European troops perished almost to a man, while the natives, or the troops related to them, remained almost entirely free from disease.

In France the mortality among the military during the last few years has been 7·6 per thousand; whereas in Algiers and Tunis in 1883-1884 it was 11·16 per thousand, in Cochin-China in 1862, 91·8 per thousand, and in Senegambia 526·9 per thousand.

† Of 1,000 persons in the British navy in the year 1889, the following were attacked by disease:

In English stations, 75; in West African stations, 122; in West Indian stations, 104; in East Indian stations, 158.

In the period of 1878-1882 there were on the daily sick-list in the Indian army: Europeans, 56 per thousand, and natives, 44 per thousand.

be expected; if an adaptation takes place at all, it can only be achieved in the course of many generations.*

Regulation of the Body-heat in the Tropics.—The proper regulation of the temperature of the body is the first and most important demand made on the newly-arrived immigrant by the physiological process of acclimatization. The greater warmth and the greater humidity of the air, both of which combined are the principal factors in the climate of the tropics, produce an effect in the immigrated European. The latter has to adjust himself by means of the regulating apparatus contained in his organism to conditions to which the native is by nature accustomed.

As is well known, there are in the tropics permanently high temperatures, which are further subject to daily increases dependent on the position of the sun. The humidity of the air, which is in Central Europe in the summer only 10 millimetres, is in Zanzibar 22·5 millimetres; in Batavia, 21 millimetres at a mean annual temperature of 25·8° C. The relative humidity at sea and on the coast of tropical countries is 80 per cent. The seasons and the various situations (more or less remote from the equator, relative height above the level of the sea) have, of course, a somewhat modifying effect on the conditions just mentioned.

It has been shown that in a relative humidity of 60 to 62 per cent., and at a mean temperature reaching occasionally a maximum of 25·7° C., it is quite possible for people to feel perfectly well, and to perform hard work without any interruption in the evaporation of the perspiration. The climatic conditions of some altitudes in the tropics fall under this head, and in these localities immigrated Europeans can retain their former ability to work. Where there is a possibility of

* The infantile mortality among the military population of India is very great; in 1870-1880 it was about 70 per thousand, against 22 per thousand in London. Major Bagnold was of the opinion that, in spite of all attempts, no regiment in India was able to bring up as many children as were required to replace the pipers and drummers.

an undiminished elimination of water, it is possible even in the desert of Sahara, where the air is so dry, for white men to perform long and wearisome journeys on foot, which they could not possibly accomplish without danger under the influence of such high humidity as is present in the lowlands or on the sea-coast of the tropics.

Comparison of Europeans with Coloured Races.—As regards the lowlands in the tropics, we notice, however, that there are marked differences between the immigrated Europeans and the natives with reference to the regulation of the body-temperature. Light work causes very soon in the European considerable fatigue, while the negro or the Malay hardly experiences any discomfort; the coloured people eliminate easily during moderate labour a greater amount of heat into the surrounding air. At the same time their skins are almost dry, while Europeans perspire very freely.*

It is as yet a much-debated question how and to what extent coloured people effect the elimination of their watery secretion. It is not impossible that they excrete by the lungs greater quantities of water than Europeans. The lung capacity of the Malays is greater in proportion to their stature, and it has also been noticed that they exhibit an increased respiratory frequency. The commencement of the respiratory passages in the negro is more voluminous, so that he can breathe more freely. An increased respiration might therefore enhance the elimination of watery vapour.

In contrast with coloured people, who are by nature endowed with special means for regulating their temperature in accordance with tropical conditions, the whites are dependent exclusively upon the increased secretion of perspiration. New-comers to the tropics perspire very freely after

* It should be mentioned here that coloured races drink very little, and that they secrete much less urine than Europeans, who endeavour to compensate by copious drinking the great loss of water they suffer through profuse sweating.

the slightest exertion. After many years the skin becomes accustomed to the altered conditions, and the perspiration is less profuse.

Nutrition in the Tropics.—There is a widespread belief that the amount of nourishment required differs materially in different climates, and that particularly in the tropics far less suffices to sustain life. Recent research has, however, shown this opinion to be wrong. The difference is only a very slight one.

Under the influence of occasional high temperatures, the appetite of a European diminishes for the time being ; where the temperature is perpetually high the appetite may also become permanently affected. New immigrants lose their appetite after a very short stay in hot places, and their nutritive requirements adapt themselves only gradually. It is impossible to state a definite temperature at which this change occurs, as it varies in different individuals.

Requirement of Water in the Tropics.—The quantity of water eliminated principally by the urine, the perspiration, and evaporation, is replaced by drinking. We know, however, from experience that drinking rather aggravates the thirst, and that the tendency is to drink more cold water than necessary. Natives prefer warm drinks, such as coffee and tea, as these can quench the thirst in smaller quantities, and they do not produce the evil results of much water-drinking. The latter, as already mentioned, gives rise to profuse perspiration, which by wetting the underclothes causes an irritation of the skin. It has also a depressing effect on the stomach and the bowels, and predisposes one to catch cold easily. The blood-pressure becomes greater, the capillaries of the skin are more injected, and the pleasing sensation experienced during the act of drinking is succeeded by a general unpleasant feeling of discomfort. If, as frequently happens, alcohol in some more or less concentrated form is taken instead of plain water, and the opportunities for doing so are not wanting, the combined effects of the double

injury soon become apparent. It is a true saying that in the tropics one should quench his thirst, not by glassfuls, but by spoonfuls.

Other Physiological and Pathological Processes in Tropical Acclimatization.—As already mentioned, one of the consequences of the regulation of the body-heat is an increase in the respiratory frequency. In new-comers it amounts to 20 or more respirations per minute; in those who have become acclimatized by a longer stay the number falls to 16, or a little more.

The pulse also has at first a quickened beat, but resumes after a time its normal character, varying, in Europeans and natives alike, between 68 and 78 per minute.

The body-temperature is in fresh immigrants rather higher, sometimes by as much as 2° C. After acclimatization there is no such increase.

As regards the blood-vascular system, there is a tendency to congestion in internal organs, particularly after dietetic errors, especially after the consumption of alcohol, and also after severe exertion.

The heart is, in consequence of these various processes, severely affected. There is hardly a European who does not, when visiting the tropics, suffer from irritability of this organ. Even in those who have become acclimatized the heart is often more or less weak.

The liver plays a very important part in acclimatization, and there are few inhabitants of the tropics in whom it is not enlarged to a greater or less extent. This is, perhaps, due to the larger quantity of fluids consumed. At all events, it is believed that most liver troubles in the tropics are due less to the climate than to an unhygienic mode of life, or to microbic infections.

The secretion of urine is diminished in consequence of the increased elimination of water through other channels, especially perspiration.

The muscular system is affected by the relaxing and

debilitating influence of the tropical climate. This accounts for the lesser working ability of Europeans as compared to that of the natives.

One often meets in hot countries people with a pronounced gray-yellowish and sallow complexion, though they are otherwise in good health. The condition has been given the special name of 'tropical anæmia,' but examinations of the blood have revealed no definite changes in its constitution, unless there was real anæmia present in consequence of malaria, dysentery, or some other illness. Tropical anæmia is now regarded as a normal condition of the skin, the pigmentation of which is influenced by the altered conditions in the blood circulation and in the secretion, as well as by the tropical light.

The nervous system, too, is subject to various perturbations. There are few in whom there are not present signs of a more or less well-marked neurasthenia, accompanied by distressing insomnia, susceptibility to mental impressions, nervous irritability, apathy, moral depression, defects of memory, and similar manifestations. Every mental exertion requires in the tropics a special amount of energy which is different in different individuals. The advance in the civilization of China, Japan, India, Australia, and South America, shows that a certain amount of mental productiveness is possible in hot countries, but such progress as has been achieved by communities in temperate climates can hardly be expected from the tropics; and it is very unlikely that they will ever supply humanity with original and profound thinkers or investigators.

The increased irritability manifests itself also in the sexual life. The desire in both sexes is increased, and the fruitfulness of the man greater. Altogether, the conditions of life and the daily events are greatly under the influence of sexual excitement, both in a good and in a bad sense. There is no theoretical reason why morality should suffer, but as a matter of fact there is a great deal of transgression committed under the tropical sun against connubial and non-connubial condi-

tions. With regard to Africa specially, a state of mind has been described under the name of 'tropical frenzy,' but the probability is that individuals unable to control themselves when away from the watchful eye of society and of the law would lose their equilibrium even at the North Pole.

The digestive organs also exhibit manifold deviations. The digestive juices are more fluid, and consequently less effective. The muscular walls of the stomach and intestines become more lax. Numerous microbes which thrive abundantly in the moist tropical climate are introduced into the digestive tract along with the solid and liquid ingesta. A diminished desire for animal food manifests itself. Catarrhs of the bowel and constipation are frequent complaints resulting from want of tonicity or from an increased loss of water through perspiration.

Digestive disturbances, anæmia, and nervous troubles influence each other reciprocally in the tropics as well as in temperate climates.

It is also worth mentioning that the skin becomes in the tropics much more sensitive, and that it is affected by even insignificant changes in the temperature. Diseases caused by cold, and especially rheumatism in different forms and degrees of severity, threaten every inhabitant of the tropics.

Mass Acclimatization.—In looking back at the most important changes mentioned above which the organism of the immigrant has to undergo under the influence of the tropical climate, we see that a considerable demand is made upon the physiological capability of each individual. If such individuals succeed singly in accommodating themselves, it does not follow, as I have already said, that a large number of colonists coming from a similar stock would be equally successful in settling in the tropics, and there founding families and generations. In the course of the physiological process of acclimatization there are numerous transitions to pathological conditions, and whereas travellers and scientists

formerly believed that the acclimatization of white races in the tropics is impossible, or, at least, possible in the case of certain European nations only, among which the Germans were certainly not included, this opinion has during the last two decades undergone considerable modification. It is important that this modified view is shared by doctors, naturalists, and officials who speak from personal experience which they obtained in the tropics. The prospects that Europeans can settle fully and completely in hot climates have improved materially; but whether they will be able to accomplish all physical labour equally with the natives is a question which the future only can decide.

Favourable Predisposition.—There are elements favoured by nature which have apparently no inclination to be attacked by endemic diseases, and especially by malaria, and which, if attacked, can overcome the maladies without any serious consequences. Such are youthful, healthy, and vigorous elements not hereditarily predisposed to disease. For the Germanic race it appears that the most suitable age for acclimatization is that between twenty-three and forty; for the Roman race the individual suitability begins much earlier—namely, at sixteen. Those who have previously trained their bodies by gymnastics or other physical exercise are, generally speaking, better adapted. Infants die easily from the consequences of dentition or digestive disturbances; too young people are not sufficiently hardened against the unaccustomed fatigues and the new conditions of an altered mode of life; they soon become anæmic, and fall a prey principally to malaria; older people are no longer sufficiently elastic.

Predisposition of Females.—It cannot be denied that European women are on the whole more susceptible to the climatic influence of the tropics than the men. Those whose bodies have become hardened through work and physical activity are in a more favourable position. The case is, however, different in those women who emigrate as

daughters or wives along with their fathers or husbands without any regard to their physical fitness. Under the influence of the climate and among unaccustomed surroundings they soon become anæmic and nervous; menstrual disturbances are uncommonly frequent. It was formerly believed that all European women living in the tropics suffer from 'the whites,' but although this is not quite true, the malady is, at all events, exceedingly prevalent. Females do not suffer so much from malaria, but this is probably due to their more domestic employment.

Sexual Life and Marriage of Europeans.—The women in the tropics show themselves unequal to the demands of married life; they easily miscarry. Young mothers, as a rule, lose their milk. Further, uterine diseases are very prevalent, and they lead among other troubles to sterility. In addition, the general condition of the women deteriorates; they become emaciated, the nervous life and the regulated psychical state are disturbed, and the married life of Europeans is therefore often a sad one. Whilst the sexual requirements of the husband are in the tropics greater, the physical strength of the wife diminishes. But although these distressing conditions are very frequent—especially in the case of young women who have come to the tropics direct from well-regulated European surroundings to find in the place of the expected bliss serious disappointments—there are nevertheless females who accommodate themselves perfectly to married life as wives and mothers.

It has formerly been asserted that the fruitfulness of Europeans in the tropics diminishes, and that it does not go beyond the fourth generation. I will deal later more fully with this assertion; for the present I wish to observe that owing to the chronic indisposition of the European women, the men are often induced to have recourse to healthy natives. Hence the acclimatization of the European race is often on the one hand frustrated by the sexual incapacity of the women, and on the other it gives rise to various mixed races.

The main reason, however, why a continuation over several generations of descendants of an unmixed European race is so rare in the tropics lies undoubtedly in social conditions. The formation of a household is to the immigrant an encumbrance, and an impediment which prevents free movement. Many a married European finds difficulties in educating his children; he therefore sends his family to Europe, or returns there himself. Others do not feel the want of European family life, and prefer a native woman; no longer accustomed to the restraint necessitated by intercourse with civilized women, they find an efficient substitute in the free mode of living with natives to whom they need pay no consideration. The offspring mix with the native children, from among whom they naturally select their sexual companions.

Tropical Climate at the Coast, in the Interior, on Islands, and on the Mountains.—The climate in the tropics is not everywhere alike. While at places on the coast, in addition to the high temperature and the unhygienic conditions, the atmosphere is very moist, the dry climate of the interior is from a practical point of view far more favourable. There the relative humidity in the dry and wet seasons varies considerably, but it is not permanently as great as on the coast.

The most favourable climate is that of the mountainous regions. The higher the zone the more it approaches the European climate. Recently attempts have been made to take advantage of this fact by settling colonists in high localities, or by utilizing to the greatest possible extent as dwelling-places elevated districts in the neighbourhood of coast towns.

But although there are no endemic diseases, such as malaria, yellow fever, dysentery, etc., present in elevated regions, and the feeling of comfort is greater, there are nevertheless many complaints from which Europeans suffer, including sterility of the women and great loss of child-life.

They also manifest an inclination to inflammatory and catarrhal diseases.

Hygiene in the Tropics.—The possibility of acclimatization on the part of single individuals as well as of entire colonies owes a great deal to the progress which the hygiene of the tropics has made during the last two decades. Whereas formerly everything was done empirically, it is now recognised that a definite hygienic system must be followed. Special and rational rules have been adopted with regard to agriculture, irrigation, housing arrangements, etc.; suitable principles are acted upon as to clothing, nutrition, recreation, and physical exercise, and although much remains yet to be done, much has already been accomplished.

Consumption of Alcohol.—A few words with regard to the injurious influence of alcohol may be useful here. Emin Pasha, doubtless an authority on questions connected with the tropics, said: 'Those who avoid all excesses, and especially the abuse of alcoholic liquor, can afford to laugh at the fairy-tales on the dangers of the tropical climate.' He thinks that Europeans suffer from it so much just because they cannot keep off intoxicating liquors. All who have had experience agree upon the injuriousness of an excess of alcohol, no matter in what form indulged in, upon the physical as well as the moral condition; it is indeed an obstacle against acclimatization, if not a downright cause of diseases which tend to shorten life. The principal dangers of alcoholic abuse lie in its effects upon the digestive, nervous, and vascular systems, in the disturbance of the physical regulation of the body-temperature, and the diminished resistibility of the body against disease-producing micro-organisms.

Acclimatization of Races.—Virchow was of the opinion that certain races are more adapted for acclimatization and others less so. These latter he called *vulnerable*, and regarded them as absolutely unsuitable for the colonization of tropical regions. On the other hand, Weissmann maintained that racial acclimatization is accomplished through

the propagation of the individual favourable qualities—in other words, by a sort of 'natural selection.' The question, therefore, arises: Is racial acclimatization accomplished by favoured individuals of a particular race or by favoured individuals of any one race, and are there with regard to acclimatization privileged races?

Among Mongolian natives the Chinese have endeavoured to form independent colonies, and have succeeded in spreading themselves over the Asiatic and Australian continents, as well as Polynesia. On account of the different climates of their country, which stretches from the Siberian border to beyond the tropics, they have in the course of time acquired a certain staying power. They have shown themselves superior to the white colonists, because they have easily become assimilated with the native races of all countries where they settled, and formed numerous mixed products. The coloured races have, as a rule, been transplanted against their will, and they have consequently become acclimatized, in spite of unfavourable circumstances, in a state of subjugation and without the help of hygienic measures, perhaps because the movements always took place towards tropical and subtropical regions, with a climate resembling that of their old home. An acclimatization of mid-African negroes in the coast-lands of North Africa, in Egypt, Tunis, Tripoli, Morocco, Algeria, has never been possible, and similarly the transportation of negroes to Ceylon, Mauritius, the West Indies, Mexico, and other such places, with a climate which ought to have suited them, has also proved futile. It is, of course, possible that the miserable treatment which they have received is accountable for these failures.*

In the tropical parts of South America—in the Antilles and in the South of the United States—the negro race

* That climatic differences play an important part in acclimatization is seen in the horse. This animal is not adapted to the damp and warm climate of the tropics, but it thrives in hot and dry countries, such as Arabia, North Africa, Australia, etc.

prospers, thrives, and is reproductive. It has even penetrated farther North, and also changed its physiognomy: the cheek-bones are less prominent, the lips not quite so thick, and the nose less flat, the woolly hair is not so profuse, and the angle of the face not so acute as in the African negro.

Wherever the negro race appeared it mixed willingly or unwillingly with people of its own kind, or with those of other races, as is seen by the numerous half-breeds in existence. In respect to physiological functions and mode of life, as well as in the manner of geographical distribution, the Arabs approximate very much the negro type.

Special examples of pure racial acclimatization we find in the Jews and the gipsies, who have that in common between them that they generally try to pair with individuals of their own race. The former of Semitic, and especially of Syrian-Arabian descent, and the latter of Aryan origin, are, on account of their migrations and their historically well-known resistibility, considered as true types of cosmopolitans. The Jews have a certain homogeneity with the Arabs, Moors, and the old Phœnicians, and have gradually advanced towards the Mediterranean Sea ever since they became dispersed after the destruction of the Syrian empires. They subsequently spread further North and West into colder regions, where they became acclimatized; this acclimatization is, however, one of the lighter kind, and not greater than that of all Aryan nations.*

The principal European emigrants who have shown them-

* In speaking of the great adaptability of the Jews, one is really bound to think more of their accommodation to the political and social circumstances of the countries in which they have settled. As to a physical acclimatization to bodily exertions such as are required by agricultural pursuits, they had no need to undergo it, seeing that circumstances necessitated their adopting other vocations; nor have the Jews, either formerly or recently, attempted to settle in large numbers as colonists in tropical countries. Sporadic Jewish emigrants have not formed there any Jewish families worth speaking of, as either they or their descendants have departed from the tradition of the Jewish race, and intermixed with natives of their adopted countries.

selves particularly suitable for acclimatization in the tropics have been the South-European nations—the Spaniards, Portuguese, Maltese, Italians, and Levantines. They live in countries which surround the Mediterranean Sea, and which have a high annual mean temperature of from 14° to 18° C. (50° to 60° F.)—this alone being an important consideration; theirs is the great historical highway which migratory nations have traversed from time immemorial, perhaps since the days of prehistoric man. The Iberian nations are a mixture of various acclimatizable elements, which stand in relationship with the Semitic races of the Arabs and Phœnicians. The other nations named above are also to a great extent mixed products; they all have a dark complexion, which is suitable for the tropics. The Italians have settled in the countries near the Red Sea, and in North and South America; the Portuguese in tropical Africa, in Southern India, and in Brazil; the Spaniards in the West Indies, in Mexico, on the large South American continent, in Peru, Chili, and the Argentine Republic. The white Spanish population of Cuba, which amounted in 1775 to 96,440 individuals, grew so that in 1861 it consisted of 793,484 inhabitants, though it must be admitted that a large part of the addition is due to new immigrants and race-mixture. But the emigrants of these South European nations have not remained pure; they have mixed with the natives to a large extent, so that the populations which claim to-day to be legitimate Cubans, Mexicans, Venezuelans, Brazilians, Chilians, Peruvians, etc., are, in reality, mixed products of Spanish and Portuguese descent.

The two principal maritime nations of Germanic blood—the English and the Dutch—have become firmly established in tropical India and the Sunda Islands, but they have treated these regions more from the point of view of productive colonies than as oversea outlets for their European overpopulations. Many Englishmen and Dutchmen have emigrated to the colonial possessions of their respective countries, but have only exceptionally founded there permanent families;

as a rule, they remained either alone, or with their families for some more or less prolonged period, after which they returned to Europe.

In the French colonies situated in the tropics there have also been no permanent populations formed which are of pure French blood. The emigrants have either intermixed with other races and nations or returned home. It is therefore impossible with respect to the French also to say definitely whether they possess, on the whole, an adaptability for acclimatization in the tropics.*

The Germans have up to recently had no proper opportunity of showing whether they possess as a race any fitness for acclimatization in tropical countries. An early attempt in Brazil has proved futile, as, when Don Pedro in 1831 abdicated the Brazilian throne, two battalions of German troops were compensated after their disbandment by a grant of

* Since the year 1830 the colonization of Algeria has been attempted; at first with unfavourable results, but more successfully during the last few decades. The circumstances in Algeria during 1855-1856 were as follows:

	Births.	Deaths.	Plus or Minus of Births.
Spaniards	46 ...	30 ...	+16
Maltese	44 ...	30 ...	+14
Italians	59 ...	48 ...	+11
French	41 ...	43 ...	− 2
Germans	31 ...	56 ...	−25

It would therefore appear that the Spaniards and Italians were in the most favourable position, and that these two nations are capable of permanent colonization without the necessity of bringing fresh elements from the mother-country. The French showed, if no great mortality, at least a very limited number of births, and the Germans a high mortality. The conditions have, in spite of improvements, remained practically the same at the present day; the purely French element, particularly that part of it coming from the South of France, has become acclimatized. Those who thrive best in Algeria to-day are Frenchmen from the South of France, Spaniards, Italians, and, above all, Jews; among the latter there were in the last decade 55 births to about 28 deaths. The German colony (Alsace-Lorrainers) is, as before, in a bad way; it shows the largest mortality—formerly 55, and now 39, deaths per 1,000 inhabitants, against 32 births.

large tracts of country between Pernambuco and Utinas. In spite of all possible assistance from the Brazilian Government, the whole number of them died within one year from the effects of the injurious emanations of the soil to which, as agriculturists, they were subjected.

Mixture of Races.—We see that wherever colonizing enterprises on the part of white people have taken place, numerous mixtures with the natives or other coloured races have been the results. Neither in East India, nor in the West Indies, nor in Cuba, Porto Rico, or Brazil, have the families of the original European settlers remained unmixed beyond the third or fourth generation. But the greatest vitality has been exhibited by the numerous cross-products resulting in the tropics from the mixture between Northern immigrants and native women. The English, who have intermixed with the latter less than others, have therefore obtained the least success as colonizers, though their commercial relations would seem to point them out as the most suitable for the purpose.*

* Many endeavours have been made to find out whether there are any cases in the tropics of European tribes which have remained pure through several generations. Statistics are, unfortunately, not available, as they are either absent altogether or utterly unreliable. We are dependent entirely on individual traditions, and, moreover, great mistakes are apt to occur when considering whether a racial acclimatization has taken place. The European mixed-breeds regard themselves, according to the demands of political or social necessities, sometimes as natives and sometimes as foreigners. In India cross-breeds are frequently called Europeans. Travellers who have reported on the subject have for these reasons frequently been misled into wrong calculations.

It is reported that in Réunion a French colony exists under the name of 'Petit-Blancs,' whose ancestors immigrated, after the occupation of the island under Louis XIV., about 1650, and who have reproduced themselves without intermixture. Individually, they hav become quite acclimatized; they pursue hunting and agriculture, are rustic inhabitants, and, though poor, they are bodily in the best condition. The town-dwellers, on the other hand, who are descendants of the well-to-do portion of later French emigrants, show a high mortality.

A careful examination of the registers of families which claimed absolute racial purity has proved that intermixture with foreign blood has taken place, or that such blood was introduced by some lateral chain that could not be followed up.

As regards the Spanish and Portuguese immigrants to the tropical countries of the West Indies, Cuba, Ecuador, Brazil, and Mexico, whose families have become the present-day inhabitants, and are proud that their blood is of the purest possible, it cannot, judging from the ordinary course of circumstances, be doubted that intermixture has played a part in their family histories. The Iberian nations have always shown an inclination to mix their blood with that of the nations among whom they dwelt. Even in their physiognomy these people have changed so much that they do not in the least resemble any longer their European ancestors. Spaniards and Portuguese have, in spite of the great resistibility which

---

Rousselet found, in 1867, in Central India (Bhopal), in the heart of the Windhya Mountains, a small tribe of European descent, which may be traced to a French immigration that took place in 1557, and which has retained the European character of the colony by avoiding intermixture with other than European nations, especially Portuguese.

The Spanish tobacco peasants in Cuba are said to have prospered so markedly that their number has gone up very considerably, and their mortality is lower than that of the mother-country.

There are said to be six families in Peru which have kept themselves pure for 200 years.

One author has taken great pains in establishing the pedigrees of pure European families in the tropics, and gives a few examples from Surinam.

A minute description of the genealogical tree of a Dutch family in Java has been published, recording its history for more than 100 years.

The population of the very small island of Kieser, in the Malay Archipelago, includes European inhabitants who claim descent from Dutch soldiers who had remained there 150 years ago, after the destruction of the fortress, and married European women. But as Kieser is frequently visited by sailing vessels, the crews of which generally stay there for some time, it is doubtful whether the inhabitants have not occasionally received an addition of fresh blood.

they are said to possess against tropical influences, remained only relatively pure in Porto Rico; they avoid every kind of fatiguing work. The older white population has almost entirely mixed with Arab, Indian, and negro blood, as well as with that of Mestees.

Whether pure racial propagation in the tropics is at all possible cannot under present circumstances be said. A European colonization which has remained incontestably pure through several generations without any admixture from outside has never been undertaken systematically; it is therefore impossible to say whether such an experiment could, or would, succeed. Natural conditions cause the accommodation to take a different course. Some think that not only is a European acclimatization possible, but also complete colonization. The latter, however, never takes place in reality in a pure form. Even the Boers, who are regarded as suitable for the tropics, are fond of staying in the tropical highlands, and frequently return to the Transvaal.*

The pairing of Europeans settled in the tropics with native women is a necessary means of naturalization, if only for the reason that white women decay and grow old far too soon. But there are European women accustomed to the tropics from whose union with natives a strong progeny has resulted. The propagation of the white race is dependent on an addition of foreign blood, even if it emanates from coloured or mixed races; thus the offspring of Europeans in the tropics retain their vitality, and acquire finally definite types.

Pairing with native races is particularly beneficial in facilitating the acclimatization of the white race. By such

* The successful colonization in the South and West of Africa by the English and Dutch, in the Argentines and in Chili, etc., by Spaniards, in the Southern States of Brazil (Santa Catharina, Rio Grande), on the Rio de la Plata estuary, and in Queensland by Germans, does not come here into consideration, for these are places situated in the temperate zone, the climate of which resembles that of the respective European home-countries, and presenting in some respects considerable advantages.

means qualities are formed which render the stay of Europeans in foreign climes endurable.

Endemic Diseases.—Mention must now be made of the endemic diseases, which influence the process of acclimatization in the tropics to an enormous extent. Although the possibility of a physiological accommodation to the climate has been admitted, the greatest doubts have arisen as to whether it is possible to overcome the pathological conditions, and even if such a successful result could be obtained in the case of single individuals, it can hardly be expected in an entire colony or in a large number of people.*

As we shall see from the following remarks, considerable progress has been made in this respect during the last two decades. This applies especially to malaria, which has always been one of the principal factors in connection with acclimatization.

Malaria.—Malaria has been known from the earliest times of historical medicine, and it has always been associated with the influence of the soil. The necessity of establishing human habitations in the neighbourhood of water supplies, either the sea or rivers, brought with it the constant struggle

* As an illustration, we give here the following figures relating to the military population of the Dutch Indies, consisting of 12,974 Europeans and 15,521 natives, for the year 1874 :

	Per 1,000 Europeans.		Per 1,000 Natives.	
	Diseased.	Dead.	Diseased.	Dead.
Malaria ...	747·9	15·0	362·3	3·6
Dysentery ...	106·8	23·1	24·8	3·8
Cholera ...	62·7	32·5	23·5	8·3
Hepatitis ...	21·7	1·15	1·7	0·38
Enteric fever ...	10·0	0·38	0·51	0·33
Beri-beri ...	2·2	0·38	35·4	1·35

In Finschhafen (German New Guinea) there were, in 1886-1888, no less than 99 per cent. of the Europeans living there suffering from malaria; about 50 per cent. of all Europeans and Malays were ill with malaria every month, and those who had to stay for sixteen months were faced with the prospect of having malaria six times. The mortality of Europeans from malaria was 90 per thousand, that of the Malays nil.

against malaria, the cause of which was up to a few years ago supposed to lie in a miasma emanating from the soil.

As a result of the ubiquity of malaria in those very tropical regions which are the first goal of colonists, the opinion became universal that the ability of Europeans to become acclimatized in the tropics is synonymous with their ability to become acclimatized against malaria, and that the process of adaptation is completed when the persons otherwise acclimatized are capable of cultivating by themselves the ground which nourishes them. The dangers of malaria do not lie only in the injury to health or in the frequent relapses which lead to severe anæmias and cachectic conditions, often ending with death, but also in the circumstance that two of the most frequent consequences of the disease are sterility in females and an enormous infantile mortality. For these reasons the founding and rearing of families cannot be accomplished without great difficulty.

The only remedy to counteract the evil influences of malaria is supposed to lie in the cultivation of the soil, and especially in its drainage, but this can only be done by self-sacrifice, personal risk, or the hands of coloured labourers—negroes or Malays—who are known to possess a certain immunity against the disease. In fact, former observers have all expressed the opinion that an acclimatization against malaria does not exist and never will. This view has, however, in recent years undergone considerable modification, and much practical work has already been accomplished which proves it to be wrong. Thanks to the discovery of the malarial parasites and of the part which mosquitoes play in the dissemination of the disease, it is now possible to take definite steps in the attempt to stamp out malaria.*

* For the prevention of malaria in individuals, the administration of quinine (1 gramme every tenth or eleventh day) is recommended with a view to killing the parasites circulating in the blood, as well as embrocation with ethereal oils, and the use of mosquito-nets. For general prophylaxis, all possible methods of destroying the mosquitoes are being tried.

Children and young persons up to the age of about thirty-five form the majority of sufferers from malaria; the first years of child-life show the greatest predisposition to it. Sex does not appear to play any important part, and if women are generally less liable to attack, it is because their domestic duties prevent them from being out in the open as much as men, thus reducing their exposure to risk. Pregnant women are not immune, as it was formerly believed, and child-bed is even a predisposing factor. The explanation is simply that infected mosquitoes are attracted under such circumstances.

Though no race or nationality is exempt from malaria, the peoples descending from the Caucasian race (Europeans, Arabs from the Berber States, Hindus) show the greatest predisposition, in the sense that an attack of the disease predisposes as a rule to further attacks; the Malay and Mongolian tribes have a somewhat lesser predisposition, and least of all the Ethiopian race; individuals belonging to the latter do suffer from malaria, but only seldom, and in a mild form.

Koch has explained how immunity is acquired by the natives; he found that adult natives in malarial countries are free from the disease, whereas the children suffer most terribly, up to 100 per cent. If they recover they gradually acquire, by fresh attacks or relapses, a definite immunity. The number of children infected with malaria diminishes as age advances; at the age of ten there is generally found, as a last sign of former malaria, an enlarged spleen, which also disappears towards puberty, so that the adult native appears finally as a healthy individual immune against malaria.

If we wish, therefore, to be informed whether and to what extent a certain locality is subjected to malaria, we must examine not only the adults, but the children as well, and particularly the very youngest among them. Where the latter are affected, malaria is endemic, and one must be prepared for the outbreak of an epidemic, should circum-

stances favour the development of the malarial parasites. Koch has also demonstrated that immunity against one form of malaria—*e.g.*, the tertian—does not protect against other forms, such as the quartan or tropical.

Yellow Fever. — Less significance than to malaria attaches to yellow fever, a disease associated entirely with tropical and sub-tropical conditions, and one which spreads only under special climatic circumstances. As permanent centres may be regarded the Antilles and Mexico, which are generally supposed to represent the cradle of yellow fever; from there the African coast from the mouth of the Senegal to the fifth degree of northern latitude became infected, with Sierra Leone as the principal point; this was also the case with the Brazilian coast, especially the ports of Rio de Janeiro and Santos, which are at the present day suffering from a permanent epidemic.

Yellow fever attacks with predilection the white race; the yellow race is affected to a much smaller extent, and the negroes are practically absolutely immune against it. Mulattoes show little predisposition, but not the immunity possessed by the pure African race.

It appears that the susceptibility to yellow fever stands in inverse ratio to the average temperature of the zone from which the individual springs. Thus Norwegians, Russians, Germans, and Dutchmen are far more liable to be attacked than Frenchmen, Spaniards, Italians, and Portuguese. The same thing has been demonstrated in America. North-Americans, Argentinians, Uruguayans, and Chilians are far more susceptible than Brazilians, Mexicans, Peruvians, and Bolivians. Negroes, though immune against yellow fever, become susceptible to it or lose their immunity if they are born in colder zones or if they stay there for some years.

The susceptibility of white people who immigrate into yellow fever zones diminishes while they remain there. Acclimatization has always played an important part in the estimation of the danger threatened from yellow fever. According to an old

doctrine, it was assumed that a stay of five years in a yellow-fever district was sufficient to impart such immunity as is possessed by native children in their fifth year of age, and this appears to agree with the facts. An interruption in the sojourn annuls the immunity obtained, and the latter can, moreover, be acquired only where yellow fever is prevalent, and not at a greater or lesser distance. Thus the permanent inhabitants of Rio de Janeiro are immune, but not so Brazilians coming from other parts of the country. Men and women are equally liable to be attacked—women perhaps slightly less because they are less exposed to infection. Among immigrants, there are generally more male sufferers than female.

During pregnancy, child-bed, and lactation, non-acclimatized women have a greater predisposition to the disease.

The mystery surrounding the cause of yellow fever has also been cleared up recently with a probability amounting almost to certainty. A North American expedition sent out to Cuba in 1900 to study the cause of yellow fever was fortunate in discovering that it is possible to transmit the disease by a prick from a mosquito infected with yellow fever. But the real organic cause of the disease is unfortunately not yet known. For practical purposes, however, much has been gained by the discovery that mosquitoes act as hosts and transmitters of the disease-poison. The precautionary measures indicated are no longer vague and of a general hygienic nature, but consist in endeavours to prevent mosquital inoculations. The prophylaxis is therefore similar to that relating to malaria, only comparatively more simple. Much has already been done, and successfully, as far as it is possible to judge, in fighting yellow fever in Havana in the manner mentioned.*

* In 1901 all the cases reported were isolated, protected against mosquito-bites, and their surroundings disinfected; 26,000 breeding-places of mosquitoes were looked up and destroyed. In October, generally the worst month, there was not a single death or illness, as against 308 cases of illness and 174 deaths from yellow fever in the preceding year. The returns for 1902 are equally satisfactory.

Judging by analogy from what has been said with reference to malaria, immunity against yellow fever is probably acquired through repeated bites from infected mosquitoes, which produce mild forms of the disease that escape observation. We may say that the mosquito theory of yellow fever explains the whole epidemiology of this disease in a simple and natural manner, and that we are at present in a position to account for its method of dissemination, its predilection for certain places and its absence from others. We can also understand now why—and this is a fact which has been known for more than a century—elevated places in yellow fever districts are free from the disease in spite of the frequent contact of persons and objects with infected centres.

Cholera.—With regard to the two most dreaded infectious diseases, cholera and plague, it has also been possible, since their respective causative agents have been recognised, to gain knowledge which is of practical importance for purposes of prophylaxis. Cholera and plague deserve to be mentioned here, as in the tropics they are endemic diseases; they have repeatedly assumed the form of violent epidemics affecting regions far beyond their centres, and even that of pandemics.

Cholera is for the whole world, with the exception of the Ganges Valley, an imported disease, which has made the tour of the globe in five great pandemics. The infection takes place by means of infected water coming from rivers, wells, or other similar sources, occasionally through infected articles of food, milk, etc., if these have in any way come in contact with the infected water. The isolation measures formerly in use have shown themselves ineffective in arresting the disease, because those who suffer from cholera obviously and seriously do not as a rule travel, and mild cases, which are just as infecti are not recognisable. On the other hand, the precautionary remedies suggested by the infection theory, and consisting of a good water-supply, reliable sewerage, isolation of the first patient observed and of those infected by him,

thorough disinfection of the discharges and of all objects coming in contact with them, have proved of benefit as prophylactics. Gastric and intestinal affections, even simple errors of diet, increase the individual predisposition. Experience has shown that men, women, and children are equally affected, and that women in child-bed are more liable to be attacked.

Plague.—The specific bacillus of plague has the peculiar property that it is very easily conveyed to rats and mice, and that these animals as well as infected human beings, who are apparently in good health though harbouring the plague bacilli, can import the disease and disseminate it. The infection takes place through abrasions in the skin, allowing the bacilli to enter into the system, in pulmonary plague through inhalation. It is questionable whether the infection can also take place through the medium of food and drink. With regard to plague also, the susceptibility of the sexes is alike.

If we consider the progress made in the recognition of the cause of these diseases, and in the knowledge of the means by which to combat and to avoid them, we may fairly say that they no longer constitute any obstacles against the acclimatization of European colonists. On the contrary, the latter have, thanks to their superior education, certain advantages over the natives, who also have no natural immunity against these diseases, even where they are endemic. Cholera is perennial among the inhabitants of the Ganges Delta, and as regards plague, it has been noticed that negroes are more liable to be attacked than others; after them come the Berbers and Nubians, and in the third place the Arabs. Europeans are most favourably situated in this respect, and among them the Northerners are more protected than the Southerners, such as Turks, Greeks, and Armenians. The Parsees are said to possess a certain natural immunity. The Chinese, however, who are otherwise particularly suited for colonization purposes, are also subject to the influences of

the endemic diseases. Predisposition is supposed to play here a less important part than social questions; superior hygienic conditions seem to have a greater value than membership of some definite race.

Protective Inoculation.—We have already seen how the immunity against malaria, formerly believed to be natural in the negro race, is produced by the endurance of the disease at an early age. Occasionally a natural-like immunity against cholera and plague also is noticed in some individuals, but experience teaches that such an immunity must have been acquired through overcoming an attack of the respective disease. Upon the basis of this process, endeavours have been made to protect individuals by inoculation against cholera and plague—in some cases with success—so that for emigrants to dangerous localities these inoculations are important precautions.

An example of successful inoculation we have in vaccination, which has resulted in rendering small-pox no longer dangerous in regard to the settlement of Europeans anywhere. Those who are opposed to vaccination should see the striking difference in countries where small-pox is prevalent between the vaccinated and unvaccinated, without distinction of race and social position, and they would soon admit their error.

Dysentery.—By the provision of a good water-supply, it would be possible to remove the dangers arising from dysentery, as the special microbes which produce this disease are generally introduced into the body through the agency of the drinking-water. The dreaded tropical abscess of the liver is in most cases also due to an infection. That improved general sanitation and careful nutrition tend to prevent the occurrence of dysentery goes without saying; suitable arrangements must be made for disposing of the fæcal discharges generally, and particularly if dysentery is prevalent at all, in order to check the spread of the disease.

A rational method of nutrition can do a great deal in preventing the digestive troubles so frequent in the tropics, as

well as their consequences. Diseases of the liver are not so common as it is generally believed, and they are not *eo ipso* a result of the climate.

A glance at the dangers of the tropical climate reveals the fact that modern hygiene is not unable to cope with them, and that they are not permanent, but temporary factors which oppose acclimatization. With the advance in general civilization, it will probably be possible to overcome all endemic diseases.

Possibility of Acclimatization.—Not longer than about ten years ago there was a great divergence of opinion as to whether it is at all possible for the white race to become acclimatized in the tropics, and a number of very eminent observers denied this possibility altogether. Recent scientific advances have, however, created a more hopeful feeling, and although unanimity cannot yet be said to exist on the point, there appears to exist a general desire that everything possible shall be done towards the removal of the difficulties surrounding the problem of acclimatization. So far the practical results which have been obtained are not as considerable as one would wish, but more may certainly be looked for in the future. The march of conquest which the white race has undertaken in the tropics is in reality an attempt to better the economic conditions of mankind, and it will require the united efforts of all nations to bring it to a successful issue. The old saying, 'White heads and black hands,' will have to remain in force yet for a while, and the negroes, the Indians, and the Malays will, in view of the fact that they can thrive and multiply in the tropics without the assistance of other races, for some time to come furnish the requisite manual labour. In the temperate zones the coloured races are inferior to the whites or to the Aryan mixed races.

Gradual Acclimatization.—Some thirty years ago the suggestion has been thrown out that colonists should proceed by stages from station to station until they reached the

insalubrious districts, and recently the opinion has been expressed that Europeans who are acclimatized in the sub-tropics can easily adapt themselves to the climatic conditions of the tropics. The real equatorial countries are much hotter, and the humidity of the atmosphere as well as of the soil is much greater, than in the tropics as far as 11° lat.; the latter have also well-defined rainy and dry periods, a differentiation which disappears gradually as we approach the equator. The sub-tropics may therefore be regarded as healthier regions than the tropics, and the idea of gradual acclimatization is certainly deserving of full consideration.

It is also worthy of mention that tropical heights of 1,500 to 2,000 metres are climatically equal to sub-tropical districts.

If acclimatization in the tropics is to be possible, it is essential that the individuals concerned should be in perfect health, with normal hearts and undisturbed digestive functions. As to the foundation of families, we have already seen that great advantage is derived from intermixture with natives or with such races which become acclimatized with greater ease. An occasional return to places in the temperate zone is of great value to the individual welfare, and a similar advantage for the propagation of a strong and healthy progeny lies in the frequent addition of fresh European blood by marriage with newly-arrived emigrants.

Favoured Colonies.—The European emigrant has mainly made his way to such tropical countries with which the mother-country is in special relations either as former or present colonial possessions, or on account of the commercial intercourse or community of language. Hygienic advantages or disadvantages have generally received less consideration. But experience has shown that certain tropical countries are suitable for permanent colonization, especially such elevated places as the Andes highlands in South America, the Mexican highlands, the high tableland of Abyssinia, the Himalaya Mountains and their forerunning chains in India, etc.; there also are some limited localities, even in the neighbourhood of

flat coast-lands, or small islands at some little distance from the main shore, which present, on account of their exposed situation and abundant air-currents, better hygienic conditions and freedom from malaria. Further, there are some insular regions—*e.g.*, among the Polynesian group the Sandwich and Fiji Islands—which bear a good sanitary reputation; St. Helena and the Cape Verd Islands are equally healthy, whilst the portion of the African continent lying opposite to them—namely, Senegambia and Upper Guinea—are notoriously unhealthy.

Particularly suitable from a hygienic point of view are, to all appearances, Queensland and its territories extending right into the tropics.

The European immigrants, English, German, and Dutch, have since the discovery of that colony by Cook, in 1770, multiplied steadily. Thriving towns have sprung up in which there is a European-like traffic. Agriculture and mining are in full swing. The native Australian races have been pushed into the interior. The public health is excellent; the towns are free from malaria, and in the rural districts this disease is very rare; the reason may possibly lie in the peculiar vegetation of the open eucalyptus forests, which permit the heat from the soil to escape easily during the night. There are some cool nights; the seasons are distinct. There are no swamps. The Europeans born in the country have grown up properly, and for a century Germanic tribes have reproduced themselves, although they do not exactly live under a highland climate.*

Part II.

Sexual Maturity.—The duration of human life is, like the seasons of the year, subdivided into four periods. With the commencing development of the sexual maturity the

* An interesting description of the climatic conditions of the German colonies will be found in the large edition of this work, and the attention of those who contemplate emigrating there is called to it.

individual ceases to be a child, and as every organic formation takes places slowly, the process of puberty in both sexes is also a slow one, and fluctuating according to the time.

Menstruation.—The period of menstruation, which in Germany begins as a rule at the commencement of the fifteenth year, depends upon various circumstances, so that considerable modifications occur in different places. The influence of race, climate, nutrition, mode of life, growth, employment, bringing-up, habitation, dress, customs, sensuousness, and physical life, is well known, and to these may perhaps be added as a determining factor the hereditary predisposition.

Commencement of Menstruation.—As a general principle, it may be said that the more Southern the home of a nation the earlier puberty makes its appearance. In the tropics sexual maturity begins between the age of eleven and fourteen, in our latitudes between thirteen and sixteen, and in the North between fifteen and eighteen. But Polar people also acquire maturity at an early age. Hitherto this has been observed principally in the Eskimos. Among the Samojedes it is also by no means an unheard-of thing to come across married women of thirteen years of age. A physiological explanation why puberty should commence sooner the nearer a people are to the Equator or to the North Pole is not as yet forthcoming.

Those who have studied the question regard climate as the chief cause of the variations. But it is hardly yet possible to distinguish which of the elements constituting a climate—namely, mean yearly temperature, geographical longitude and latitude, elevation above the level of the sea, proximity of the sea, etc.—claims the preponderating influence, if any, in the matter, and to what extent. Race is probably also an important factor with regard to the commencement of menstruation, but it is difficult to define that importance.*

* It is said that in the Arctic regions the quantity of the menstrual blood is extraordinarily small, and that the Eskimo women menstruate only in the summer-time, and then only to an insignificant extent; on

The influence exerted on the appearance of menstruation by a luxurious and comfortable mode of life, and also by an indulgent bringing-up, may be seen from a calculation for Paris, which shows an average age of fourteen years and four months, whereas in women belonging to the middle classes menstruation begins with fifteen years and two months, in working women with fifteen years and ten months, and in servant-girls with sixteen years and two months.

Experience has shown that women generally begin to menstruate later in country districts than in towns; the difference is sometimes as much as six months or a year. It is believed that town women acquire the earlier maturity in consequence of the more intensive excitements to which they are subjected.*

End of Menstruation.—Where the natural desire appears precociously early, it also disappears sooner, and the productiveness of the female body ceases completely at the thirtieth and often as early as the twenty-fifth year. Tacitus

---

the other hand, menstruation in the tropics is very profuse. In our climate the quantity of the menstrual blood is estimated by various authors at between 100 and 250 grammes.

* The following figures may be quoted here: Indian women menstruate in Calcutta (at eleven years and eleven months) sooner than negresses in Jamaica (fourteen years and ten months), and Eskimo women in Labrador (fifteen years and three months) sooner than Danes and Norwegians (sixteen years). In Hungary the average age of puberty is—sixteen to seventeen in Slovack girls, fifteen to sixteen in Magyars, and thirteen to fourteen in Jewesses. For Norway it is sixteen to seventeen years in Laplanders, and fifteen years in Kwain women. Frequent variations occur round these average figures. In Smyrna one sees mothers eleven years old; in the North of Persia the signs of female fruitfulness appear with the thirteenth year, and in the South as early as between the ninth and tenth years; in Eboe, on the coast of Guinea, between the eighth and ninth year.

The average age at which young girls begin to menstruate in non-European countries is thirteen in Palestine, thirteen to fourteen in the Singalese of Ceylon, twelve to thirteen in Siam, sixteen in China, fifteen to sixteen in Japan, fourteen in the East Indian Archipelago, and eleven to thirteen in the tropical and sub-tropical parts of South America.

certainly uttered a true experience when he ascribed the prolonged youth of the Germans to their late marriages.

As regards our temperate climate, and under regular circumstances, we may say that menstruation ceases between the forty-fifth and fiftieth year, though there is little precision about it, and that the menstruating life lasts, therefore, from thirty to thirty-five years.

Experience teaches that women who begin to menstruate at a very early age, say at ten or eleven, generally enter the climacteric earlier than others, so that the change occurs at forty or forty-two. Others maintain the contrary—namely, that women whose menstruation commences later in life reach the climacteric very early, and that those who begin to menstruate very early continue to do so until a comparatively advanced age.

Certain observations seem to favour the view that among the lower classes menstruation ceases sooner than in the upper.*

A frequent phenomenon after the cessation of menstruation in matronly women is the accumulation of fat in all parts of the body, which sometimes assumes extraordinary dimensions. In consequence of the gradually relaxing and more expansible state of the tissues, the fat deposits tend, in contrast to the elastic condition in young women, to form depressions and wrinkles.

* The cessation of menstruation occurs in North Italy between the ages of forty-four and forty-six, and in Central Italy between forty-five and forty-seven; in the South it falls, as a rule, in the forty-fifth year, but it may be delayed to the fiftieth or sixtieth year.

Early marriage, especially before complete maturity, generally results, as experience shows, in early decay. The women in Bosnia and Herzegovina begin to look old when they are thirty-five years of age; Maori women, when twenty-five or thirty years old, appear more like forty or fifty; the cause of their premature decay probably lies in the early beginning of their sexual life. In Chinese women menstruation lasts, at the utmost, till they are forty years old; in the Japanese it goes on until the end of the fourth decade. The custom of early marriages in Java accounts for the circumstance that Javanese women do not become pregnant after the age of thirty-five, and reports exist that Banganese women cease to conceive at the age of twenty.

Duration of Sexual Maturity in the Male Sex.—The commencement of puberty cannot be ascertained in the male sex so accurately as in the female; it is assumed that men become sexually mature about one year later than women. The development of the testicles occasions, as events show, an intensive growth in certain definite parts of the male body. The most noticeable external sign consists of an alteration in the voice; the beard and pubic hair begin to sprout; the bones and muscles become stronger; and the generative organs receive their complete development. The rule that the beauty of mammalian male animals lies in their full bodily strength applies, therefore, no less to man.

As in the female sex so in the male, the signs of puberty show themselves in hot countries at an earlier age—in Egypt, for instance, in boys of between eleven and fifteen.

The prematurity of the male youth in the tropics is accountable for the very early commencement of sexual intercourse. The unrestricted social customs of many non-European countries afford most varied opportunities, so that young men of sixteen or seventeen are in the habit of regularly gratifying their sexual desires.

In men of advanced age the process of sperm formation undergoes a gradual retrogression, though occasionally the semen is normal in very old men. The generative faculty begins, as a rule, to decline in the sixtieth year. Frequently the offspring of men advanced in years are imperfect.

Marriageable Age.—Law and custom have regulated the marriageable age. As a rule, we may say that the lower the grade of social civilization of a people, the earlier the age at which its girls are allowed to marry. Superior customs raise the regard for, and the value of, woman; moreover, the fact that among civilized nations marriage renders the creation and support of a separate household necessary contributes materially to its postponement.*

* Whilst Lycurgus forbade all young Greeks to marry before attaining the age of thirty-seven, Plato demanded that the marriageable age

All civilized States have seen the necessity of fixing the marriageable age by law, in order to prevent arbitrary decisions on the matter likely to affect the welfare of the community. Naturally, it was the Church that interfered first in questions relating to marriage, and canon law fixed the marriageable age for boys at fourteen, and for girls at twelve. An analogous regulation is found in the Middle Ages in the Longobardian, Frisian, and Saxon laws. The present-day German law fixes twenty as the minimum marriageable age for men, and sixteen for women. In Russia there is a law in force which prohibits, under pain of transportation to Siberia, marriage with a girl under sixteen years of age.*

---

for men should be thirty, and that for women twenty. Under the Emperors of Rome the completed twelfth year was considered a sufficient majority for marriage, but there are proofs that girls married when they were only eleven years old.

The less-civilized European nations, especially those in the South, have not yet discontinued their custom to marry their girls very early. Among the Ricas, a tribe of the southern Albanians, girls marry when they are twelve, and boys when they are fifteen, and yet these premature marriages do not seem to impair at all the really athletic form of this type of humanity. It is, however, to be remembered that Albanian women are considered fully mature at the age of twelve. Among modern Greeks, on the other hand, sexual maturity does not occur before the age of fourteen or fifteen in females, and sixteen or seventeen in males. The Ruthenians in Hungary are also in the habit of giving their girls in marriage when twelve years old, and of the southern Slavs it is reported that, as a rule, their women marry when they have completed their sixteenth year and their breasts begin to swell.

* Youthful marriages are uncommonly frequent among non-European nations. Some influence on the custom of early marriages in the East is probably exercised by the religious institutions, which act in conjunction with the climatic causes. Marriage is one of the religious duties of Mahometanism, and Mahometan girls are permitted to marry when ten years old. It is said of Turkish women, that they menstruate at the age of ten, that they marry at twelve, and soon become mothers; that they are very prolific, that they cease to menstruate at twenty, that they grow old and decay very early. In Upper Egypt boys of fifteen to eighteen marry girls of twelve to fourteen, and these marriages, which are in our estimation premature, are, moreover, to the extent of

Numerical Proportion of Both Sexes.—Nature looks to it that there shall be as many men as women, and provides approximately one woman for every man. Among civilized nations it is proved that there is an excess of male over female births.*

In Europe the female sex shows in the first periods of life a markedly smaller mortality than the male; moreover, the shorter duration of life in men is a widely-spread phenomenon, which is to some extent easily explained. On this account there is in the later periods of life an alteration in the original proportion to the disadvantage of the male sex. The entire population of Europe shows, therefore, a predominance of women over men, so that there are 102·1 of the former to 100 of the latter. But this does not apply to all countries in the world, for some show exactly the reverse. In the proportion of women to men, there is also a racial element at work. On the whole, there are in Europe more men than women among the Latin and South Slavonic nations, and more women than men among the Teutonic and North Slavonic peoples.

But human customs and practices as well as influences the nature of which we do not quite comprehend yet do their

about two-thirds entered into between cousins without showing any ill-effects upon their fruitfulness. With the Chinese it is customary, though not legally enacted, for girls not to marry before they are fifteen, but to wait, as a rule, till they are sixteen, and for men not before they are twenty. In Japan the marriageable age was, up to recently, in men sixteen, and in women thirteen. In North Polynesia, in the Hawaian Archipelago, girls are said to be ripe for marriage in their eighth year, but they may not marry before they are fourteen. Among the negroes in Africa marriages also take place early, and mothers fourteen years old are no rarity. In the Aleutian island Atcha, boys may marry as soon as they can drive a' baidare' (a vehicle), and girls when they can sew properly—that is, generally, in both about the tenth year.

* A report of the statistical office of the Italian Minister for Agriculture on the proportion of male to female births for a period of nineteen years, and with respect to thirty-two countries, shows that there are constantly 105 boys born to every 100 girls.

utmost to alter this proportion. Economic and political measures tend sometimes and in some places to increase the number of one sex over the other, as, for instance, emigration, military requirements, etc.

Monogamy always acts, to a certain extent, as a compensating medium, and it re-establishes the balance in a comparatively short time. This is seen especially in newly-opened countries into which there is an overwhelming immigration of men. On the other hand, polygamy is supposed to be mainly responsible in uncivilized nations for the disturbance in the numerical equality of the sexes, and for the dangerous fluctuations of the population.*

One of the characteristics of the colonies is the smaller number of women, because women emigrate, as a rule, less than men. Migrations disturb the progress of a population. In the countries from which emigration proceeds more women remain behind; in those receiving immigrants the men form a preponderating majority. An excess of women over men is observed among nations in all states of civilization the male populations of which have been reduced by war or emigration.†

* In nations of a low type which constantly struggle against misery, the number of women is apparently far behind that of the men. According to the census of 1881, the natives in South Australia numbered 5,628 individuals, of whom 2,430 were women; of the 883 children, only 405 were females. The infanticide prevalent among such tribes generally affects more the weaker sex, and its surviving members suffer too much from the hardships which fall to the lot of the women-folk of wandering nations.

Where a population is declining, it seems that the female portion disappears more rapidly than the male. Such nations are generally warlike; the loss of a woman is therefore of no consequence to them. Single women are allowed to perish unmercifully. The harder the struggle for existence, the greater the necessity of the weaker sex to seek the companionship of the stronger one; this is the reason why, in such countries as Greenland, single women find it impossible to exist long without male children.

† The state of unrest of many nations which are in a barbarous condition is not favourable to the growth of the female element. There are large emigrations, as, for instance, those of the Chinese to the

Polygamy causes in some tribes the number of women to increase, in others to decrease. A more just subdivision of property, such as is desired by some in other directions, has in any case been attained with regard to women by the system of monogamy, which prevents an accumulation of women in the hands of rich individuals, and especially in those of heads of State. In so far as civilization depends upon the steady and regular growth of nations, it owes this blessing to the decline of polygamy. Wherever the latter prevails—and all uncultured nations are formally or practically polygamous —the women are unequally divided and the number of births diminishes. Many men go without women even where the latter are greatly in excess, as, for instance, in Uganda; a few know how to obtain a great number. But these are not able to make up for the loss in births caused by the compulsory celibacy of so many others. Malthus already knew that in Turkey the monogamous marriages of the Christians were more productive than the polygamous marriages of the Turks. This assertion has recently been amply confirmed by modern investigators.

The necessity to work acts regulatingly on these conditions. Where the natives are in regular employment their physical well-being and their favourable social circumstances are evident.*

Special Marriage Forms.—There are polygamous marriages and polyandrous marriages. In the former the household is conducted by one man who has several wives; in the latter one woman belongs to several husbands at the

---

shores of the Pacific Ocean and to the West Indies, in which the female sex is not represented by as much as 1 per cent. In British Guiana there are, in spite of the regulated emigration of Indians, only about 10,000 coolie women to 30,000 men.

* The infantile mortality among the working populace of Japan is low, whereas it is high among the decrepit higher ranks. Although polygamy is legally permitted in China and Japan, it has, fortunately for them, never become so universal there as in other countries.

same time. Polygamy is prevalent all over Africa; it was also permitted among almost all Asiatic nations; in America, on the other hand, it is seldom met with.*

Genuine polygamy is seen among the tribes which form a transition between Asiatics and Americans—namely, among the Eskimos, the Aleutians, the Koujacks, the Koljuschis, in whom other sexual aberrations are also not absent; similarly among the Maoris of New Zealand and among some tribes of the Southern Malabar coast and the Uilgiri mountains, and in Ceylon.

Origin of Marriage.—The opinion has been expressed that early man did not practise nuptial cohabitation, and that the women were common property of all the male members of the tribe. This condition is described as hetarism. But the majority of ethnographers and anthropologists do not share this view. It seems incredible that prehistoric man should not have known what marriage is, as even in animals we find a sort of strict pairing.

Consanguinity.—In many tribes we meet with a custom according to which closest relationship is not only no obstacle against marriage, but rather an additional advantage. On the other hand, there are tribes which prohibit marriage between close blood relations, and also between persons whom we should at the present day hardly regard as relations at all —for instance, between foster-brother and foster-sister. In civilized countries definite laws have been passed fixing the degrees of relationship which act as impediments to marriage;

* There is an often quoted statement to the effect that in polygamy female births preponderate, and that Nature adapts herself, so to speak, to the locally prevailing marriage customs. This is, however, doubted, and credible observers have testified that boys and girls are born in the harems in exactly the same proportions as under monogamous circumstances.

Breeders of animals assert that in racehorses, greyhounds, and Cochin-China fowls the proportion of the sexes in births remains unaltered, though the strictest polygamy is employed in breeding these animals.

but the laws of the different States differ materially from one another.*

Infantile Marriages.—A brief reference to marriages between children is here indicated. Very few nations practise the habit of marrying their children when they are very young—between four and nine years—but the age of ten or twelve is a very prevalent marrying age. Such early marriages do not, of course, mean in every case an immediate commencement of sexual intercourse. Among the Chinese, for instance, the marriage contract is often concluded when the girl is only six years old, and the young wife enters the household of her husband; but the consummation of the marriage does not take place before the girl is at least twelve or thirteen, when, as a matter of fact, she is already fully developed. It is regrettable to hear that Europeans in Celebes are in the habit of keeping concubines of the age of twelve or thirteen, and the custom is so general there that no one seems to find fault with it. India is always spoken of as the classical land of child-marriages. On account of the numerous physical injuries which these children suffer in their marital intercourse, an agitation is at present on foot to abolish by law this institution, so horrible to the feelings of every humanitarian. There are cases where some of the poor creatures have become mothers without ever having menstruated. It is astonishing to hear that the child-birth of such young mothers often takes place without any injury, though many of them do lose their lives.†

Premature senility and an early extinction of the conceptive faculty are said by many authors to be a direct consequence of infantile marriages.

Beauty of Female Sex.—We are not here concerned with the beauty of women from the æsthetic point of view,

* The subject of consanguinity is discussed at great length in a separate chapter.

† It appears that premature sexual intercourse is capable of hastening the first appearance of menstruation.

but from that of the scientist, which demands that the female body shall be so constituted in all its parts as to be fully equal to the sexual functions of the female sex.

Climatic and other external circumstances have, as a rule, a decisive influence, sometimes beneficial and sometimes injurious, upon the physical and moral development of human nature in general, and the female sex especially. The position of woman in the social life, and the activity allotted to her by convention among all nations, contribute to the more or less beautiful development of the female form. Among uncultured people in a state of naturalness, among backward tribes with primitive customs, the contrast between man and woman is not pronounced, but more or less obscure. With the growth of civilization it becomes clearer and clearer, and it advances step by step. Rural populations living in a secluded state, and proletarians constantly bowed under the yoke of hard manual labour, exhibit in both sexes almost the same physiognomy. Among civilized nations living in comfort, beauty and nobility of features progress from generation to generation along with mental improvement, though Nature does like occasionally to create beautiful female types under the most unfavourable external conditions and among nations in a low state of culture.*

Nations which intermarry only within their own race create

* A French author has said: 'Beauty is not at all the property of one race or another. Each race differs as regards its own beauty from the other races. Rules of beauty are therefore not general; they must be studied specially for each race.'

Although the conception of beauty is uncommonly different among the different races and nations, it becomes in the male suitors an unconscious cause in the selection of their breeding partners. Darwin maintains that women transmit their beauty to their female children to a greater extent than to their male offspring, and for this reason women have gradually become more beautiful than men.

Through race mixture the female beauty gains in quality, but it is not yet known which peculiarities of the father or of the mother are of greater influence on the products of the race mixture.

descendants who exhibit most markedly the characteristics of that race. Intermixture with other races produces by hereditary transmission in the offspring either paternal or maternal peculiarities.*

A universal admission as to the representative of which race or mixture of races deserves the first beauty prize has as yet not been possible to obtain, nor is it likely that one will ever be obtained, seeing that opinions on the subject of beauty are as different as the conceptions of beauty ideals.

Mixture of Races.—It was formerly believed that the offspring of different human races possess no fruitfulness. But this is by no means the case. Even in the breeding of animals it is seen that those which avoid each other sexually when in a state of freedom can be brought together for the purpose of mixing their blood and characteristics. It has never been denied that Aryan Hindus can produce mixed descendants by Dravidas, and that these descendants are in their turn capable of reproduction; the same may be said of Chinese with European women, and of Arabs with negresses. It is, however, frequently said that mulattoes do not survive many generations. The women of mixed blood in Central America are also said to be, as a rule, sterile. But the cause of this certainly frequent occurrence is by no means a physio-

* There are thousands of ethnographical proofs. If a negro mixes with an Egyptian woman, the children have yet the hair of the negro race, but the grandchildren have smooth hair, and they look like Egyptians. Europeans and Turks procreate with Abyssinian women children who approximate in their physical type Spaniards and Portuguese. The cross-products of Javanese and Europeans are strikingly good-looking; they have neither the turned-up nose of the Malay nor the big smiling mouth and the narrow eyes. One traveller reports having seen a two-year-old child of a white man by a woman from New Guinea which looked like a sunburnt European child with curly fair hair, dark eyes, and red lips. An interesting type is that of the mulatto woman, a product of the union between a white man and a negress. She is of slender build, has delicate hands, rounded breasts, a tall stature, small and dainty feet, and is, as a rule, of a frolicsome disposition.

logical one. It is due rather to immoral life and early excesses. On the other hand, mulatto women of every imaginable prolificness are by no means rare. The fact that on the island of Cuba and in Hayti half-blooded populations have grown up in hundreds of thousands is, at least, sufficient proof that the descendants of South European creoles and negroes are reproductive. Complete sterility of the Anglo-Saxon mulattoes in Jamaica has only been observed temporarily, and is even contradicted altogether. A further mixed race in America are the sambos, descendants of negroes by women belonging to the so-called red aborigines. They are often seen among the Creek Indians in the United States, and also in Central America, and the inhabitants of the coasts of Panama and Columbia bear decided marks of half-African blood. In the countries which were formerly Spanish colonies there are millions of cross-products by Europeans and native American women, known under the generic name of 'mestees.' In South America there is a large population of mixed offspring of negroes and Portuguese, in Chili one of Indians and Spaniards; in other parts of that continent there are the most complicated mixtures between Indians, negroes, and whites, but it is just this triple admixture which supplies the strongest proof of the reciprocal fruitfulness of different races. The mixed race in Paraguay surpasses even in fruitfulness the two races from which it has sprung. An extraordinary reproductive faculty is witnessed in the mulattoes, who are very plentiful in the European colonies as well as in the States of South America. The reason why there are so few mixed people in Australia is, as shown by judicial investigation, to be found in the fact that the natives are in the habit of killing their impure children. Tasmanian women have also brought into the world numerous cross-products. Of greater importance still is the circumstance that half-blooded individuals have resulted from unions between Europeans and Hottentots; for if there is any type of humanity which may claim to be regarded as

a special kind, it is surely these aborigines of the Cape countries.*

The colour of the skin changes rapidly by the mixture of European men with brown-yellow South African women; this does not take place so quickly where negroes mix with European women: the negro blood shows itself in such cases even in later generations. The descendants of Europeans by coloured native women are called 'creoles' in such extra-European countries as were formerly Spanish, French, or Portuguese colonies; the offspring of Europeans by Indian women are called 'mestees' (in Mexico also 'ladinos,' in Ecuador, Peru, and Chili also 'cholos'); those of Europeans or creoles by negresses are called 'mulattoes,' and those of Indians by negresses 'sambos' or 'chinos.'

Where mulattoes intermix with whites, the negro blood is indicated in the subsequent generations by fractions: a terceroon is the offspring of a European by a mulatto woman, a quadroon one by a terceroon, and so on from quintroon to octoroon. The quintroon is hardly in any way different from a white, and even before the abolition of slavery in the United States he was regarded by law as a white. While the mulatto is still very much like a negro, the individuals possessing less negro blood show yet the violet colour of the nails and a bluish ring round the eyes as characteristic signs, and these are the last to disappear. *Vice versâ*, if mulattoes mix with negroes, the white blood becomes quite extinct again in the fourth or fifth generation. The success of intermixture is, however, by no means regular or calculable

* These cross-products are called in their own country partly bastards and partly Griquas. This last term has, however, been misused so much that it does not convey any longer a restricted anthropological meaning. Finally, there have been many kinds of intermixture between British, Dutch, mulattoes, and negroes in out-of-the-way islands, such as Tristan d'Acunha. Of Hottentots it is said that they produce, when they marry among themselves, three or four children; when they unite with negroes this number is trebled, and it becomes even higher when they intermix with whites.

beforehand. Just as among ourselves the union between fair-complexioned and dark people is not always productive of intermediate stages between the two types, but sometimes of fair children and sometimes of dark, so the offspring of marriages between whites and coloured people may incline either to the one type or the other.*

The very light-complexioned mixed race of Europeans and Hindus is known as Eurasians or Australasians; they are very numerous, and politically of great influence in their country.

Marriage in the Tropics from the Medical Point of View.—The hygienic advantages of marriage and of a household of one's own are for the male inhabitants of the tropics of particular importance; a regulated mode of life, suitable nourishment, a healthy home, and similar other necessities, are often very hard to obtain otherwise in tropical countries. Many a promising career has been shattered through the impossibility of finding the necessary domestic comfort for the preservation of health under circumstances of an exhausting nature. And what a blessing it is to have a wife when sickness demands careful and intelligent nursing! It is in the tropics where both doctor and patient experience the want of the external conditions created by the married state. Some of the objections which Europeans in the tropics have against marriage from their point of view, and from that of the eventual offspring, are often practically disposed of by recourse to concubinage.

Though we must bear in mind the unfavourable climatic influences on the female sex, it would nevertheless be a mistake to condemn on principle the marriage of every European in the tropics. As in everything else, it is necessary to consider each case on its individual merits.

We cannot discuss here the relations between the various

* Even in later generations there is often a reversion to an ancestral link—a sort of atavism—so that the grandchildren, for instance, resemble more their grandparents than their parents.

diseases and marriage with respect to climate and race, but some mention must be made of the geographical distribution of the two diseases which, as is well known, are of the greatest importance to the married state and to the offspring resulting from it—namely, syphilis and tuberculosis.*

Distribution of Syphilis.—Syphilis is now almost universally prevalent in tropical and sub-tropical countries. There are only a few isolated places not yet open to the commerce of the world—in Further India, on the Dutch-India islands, in Luzon, in the heart of Africa, in New Guinea, and the island groups of the South Sea, in the furthest interior of Brazil, the inhabitants of which are as yet free from the ravages of this dreadful scourge. It is, unfortunately, an incontrovertible fact that the carriers of civilization have in newly opened-up countries introduced along with the blessings of culture the curse of syphilis. Wherever discoverers, conquerors, explorers, seafarers, and merchants have made their appearance, syphilis was not long in following, and in infecting countries which were before as clear of it as they were of every vestige of civilization; 'like a merchandise,' it has been said, 'syphilis spreads by stages from tribe to tribe.'

Though syphilis is present in all warm countries with few exceptions, its distribution in the same is an unequal one. An important factor in this connection is the purity or laxity of the morals reigning among the inhabitants, and particularly the extent which prostitution has attained. The more freely and unrestrictedly prostitution goes on in a country, the greater, as a rule, the prevalence of syphilis.

It is well known that in the Sandwich Islands almost the entire native population is affected with syphilis. Syphilis is largely and equally distributed in Turkey and Asia Minor among all races—Circassians, Kurds, Tartars, Turkomans, Arabs, Christians, and Mahometans. In Burmah, after the

* For further details on these diseases the reader is referred to the respective special articles.

abolition of the control of prostitutes, the percentage of venereally diseased in the British Army rose from 155 to 376 per 1,000. Acquired syphilis is very often seen among the native Eurasian schoolboys under sixteen years of age. In Siam at least 70 to 80 per cent. of the male European population are affected, and among the Siamese it is a rare thing to come across a man, even if belonging to the highest circles, who has not had syphilis.

The most severely afflicted localities in Asia are the earliest habitations of the disease—India, China, and Japan. In the Dutch Army syphilis is present about four times as often among the Europeans as among the natives, most of whom are married.

The inhabitants of the African coasts are severely affected, probably through infection from Europe, whilst Central Africa suffers to a comparatively mild extent only. On the east coast of the African continent and on the East African islands the number of syphilitics is estimated at five-sixths of the whole native population. In Durban (Natal) syphilis exists among all classes of society. The frequency dates, however, from the discovery of the gold-mines, which have attracted prostitutes from all parts of the world. In Windhoek (German West Africa) half the number of Hottentots and mixed people applying for medical treatment suffer from syphilis. In Kaiser Wilhelm's Land (New Guinea) syphilis was, according to the unanimous opinion of explorers, unknown before Europeans settled among the native Papuans. The latter are very particular in not permitting their women to have sexual intercourse with white men. Soft chancre and gonorrhœa are also said to be unknown there.

In the Bismarck Archipelago, where native women are easily procurable, gonorrhœa has become very frequent among the natives; and syphilis, which was there also unknown, must by now be quite a common occurrence.

It would be possible to continue this selection also with reference to the American continent.

This general prevalence of syphilis is naturally not without influence on the public health, and on the relation between births, miscarriages, and deaths, and it often represents an important cause of the constant decline of the native population observed in some localities.

Generally speaking, the course of syphilis in the case of Europeans is the same in the tropics as in Europe, but in the case of the natives it is, as a rule, more severe and more rapid. The reason is probably because the hygienic surroundings of the natives leave very much to be desired, and because a rational treatment of the disease is unknown.

It was formerly believed that the negro race is immune against syphilis. Livingstone, who in the middle of the last century found Bechuanaland as yet free from the disease, whilst among the mixed races of the Korans and Griquas it was as prevalent as in Europe, made the assertion that syphilis does not attack the full-blooded negro, and that it appears the more frequently in mixed races the more European blood flows in their veins. Circumstances have, however, materially changed since then in Africa. Syphilis has, with the increase of trade in the last fifty years, made enormous progress in the Dark Continent, and even the natives of Bechuanaland, who were at one time quite free from the disease, suffer from it now to a very great extent.

Gonorrhœa has a universal distribution, but is hardly in any way different in the different races and climates than it is in Europe, both in its form and in its consequences. It is often maintained that gonorrhœa is mild in the tropics; other observers think it is virulent. On principle, such a differentiation is not justified. It is probably the attention given to the disease, and the manner of its treatment, which determine the course of gonorrhœa; the same may be said with regard to the dietetic observance, particularly the abuse of alcohol.

Distribution of Tuberculosis.—It is well known that tuberculosis is prevalent all over Europe. It is only in

a few places, and under special circumstances, that a deviation from the general high mortality figure occurs. It is reported, for instance, that the disease is rare in the north-west European islands, in Iceland, Faroe, the Shetlands, the Hebrides, and in the North of Norway; it is also said that Cyprus is almost free from tuberculosis.

In the United States of America tuberculosis is as prevalent as in Europe. The women show a larger mortality because, being more confined to their homes, they are more subjected to the contaminated air containing the products of the infectious expectoration. In Central America, the coasts of Mexico, and especially the towns Vera Cruz and Tampico in the east, and Guayama and Mazatlan in the west, as well as the coasts of the Yucatan peninsula, Mosquito, and Panama, are afflicted with rapidly progressive forms of consumption, as is also Lima on the coast of Peru. On the other hand, the highlands of the Andes in Peru and the high plains of Mexico, Bolivia, and Venezuela, are more or less free from consumption.

The coast-lands of the Argentine Republic and those of Brazil are said to have been formerly quite free, but are greatly affected now since the population has increased considerably and many large towns have sprung up. On the other hand, the villages and towns of the Cordilleras and their spurs enjoy as yet a certain amount of immunity. In British Guiana also the disease is assuming large proportions. A great difference is noticeable there in the character of the illness; in the negroes it is very rapid, and takes the form of a pneumonia, whereas in the coolies it is much slower, and assumes more the nature of a bronchitis.

In Egypt consumption is rarely seen in the interior, and especially in the desert, but it is very frequent in the coast-towns, such as Alexandria. In Algeria it is not very prevalent, but neither is it altogether rare. It is said that the Kabyles remain free from the disease so long as they lead a nomad life. In the West of Africa tuberculosis is prevalent in many

parts, near the sea as well as inland; the coast of Senegambia seems to make a striking exception. On the high tableland of South Africa the disease is rare.*

In the East of Africa the disease is frequent and generally rapid in its course, and the same may be said with regard to the islands of Mauritius, Réunion, and Madagascar. The same conditions prevail in the Polynesian islands, especially in the Sandwich group, and in most of the islands of the Indian Archipelago. In New Guinea pulmonary tuberculosis is either rare or, as a rule, imported.

On the high plains of Armenia, on the Syrian coast, and on the high tableland of Persia, consumption is relatively rare. In India it is not so prevalent as in the temperate latitudes of the Eastern Hemisphere; but it does occur, and it generally runs an exceedingly virulent course, like in the other regions of Eastern Asia which are tropically situated, namely, Ceylon, Further India, and especially Cochin-China, China, and Japan. On the other hand, tuberculosis is exceedingly rare in the high plains of the Western Ghauts, situated at an altitude of 1,500 to 2,000 metres, on the Nilgiri Hills, and on the slopes of the Himalayas.

Australia was formerly reputed to be highly immune, but has now lost this reputation, and it seems that the disease is constantly becoming more frequent among the increasing populations of the Australian coasts.

Climatic conditions alone, without regard to other, and especially social, relations, do not offer a sufficient explanation of the immense distribution of tuberculosis. The temperature does exercise a modifying influence, but is not the principal factor; neither cold alone nor heat alone can produce consumption, for there are regions both in the frigid and

* This applies also to German South-West Africa, so that the Utopian proposal has been made that labour colonies of work-people suffering from consumption in its early stages should be formed there as a remedy for the sufferers, and as a means of raising the condition of the country.

in the torrid zones which possess a high degree of immunity, and others which are severely affected. It is very probable that the humidity of the air is of injurious influence. The course of the disease is in tropical and sub-tropical countries, as a rule, much more rapid than in the temperate and the cold zones ; it has also been pointed out that consumption exhibits in hot countries an acute and subacute character, and in cold and temperate regions one of a more chronic nature.

An almost universally recognised principle is that the elevation of the soil above the level of the sea exerts a great influence on the frequency of consumption. As evidence of this we have the rarity of tuberculosis in the Peruvian Andes, on the high plains of Mexico, Bolivia, Guatemala, Salvador, New Granada, and on the Rocky Mountains. In the higher regions of Guiana the disease is seldom seen, whereas in the valleys it is terribly destructive. The same may be said of Abyssinia, of the elevated points in Armenia, Persia, East India, etc.

Negroes are said to be more inclined to fall a prey to consumption than any other races, and it is also said that the disease runs in their case a more rapidly fatal course. It is questionable whether this condition is due to a peculiar constitutional anomaly, or whether it is insanitary housing accommodation, insufficient nourishment, and the whole mode of life, which are responsible for it. The same causes may account for the higher susceptibility of some nations which we occasionally hear of.

Experience has shown that large tracts of land which were more or less free from consumption before they were colonized exhibit an increasing mortality from this disease after being opened up, as, for instance, in the United States of North America, Brazil, and Australia. Although it is the tubercle bacillus of which we must think in this connection, we must also not forget that where large numbers of people who have to struggle for their daily bread congregate, and where they are obliged to live under unsatisfactory con-

ditions and without sufficient food, powerful factors are created which cannot fail to materially assist in the spread of consumption.

Anthropological Observations.

Celibacy.—Marriage is a psychological factor which is necessary for the physical welfare of man as well as of woman. So long as there are no morbid influences, no moral or material troubles to contend against, the bodily appearance of married men and women always improves in consequence of their regular mode of life; the commencement of senile decay is materially postponed. As already mentioned in another chapter, statistics prove that marriage has a beneficial influence on the duration of life.

Human society as constituted at the present day permits to man the gratification of his sexual desire without subjecting him to the necessity of coming into conflict with established customs, but not so to woman. For this reason celibacy in the male sex is not outwardly so apparent as in the female. There may be 'old bachelors' who in the course of time acquire certain physical or moral peculiarities, but these are far more prominent in the 'old maid.'

In the unmarried girls of the German nation, for instance, the loss of freshness begins on an average in the twenty-seventh or twenty-eighth year; but often the first signs of the alteration become visible at the even earlier age of twenty-five, and once started this alteration goes steadily forward. The rosy colour of the cheeks disappears gradually, the skin becomes softer, the lips get pale and thin, and the naso-labial fold acquires a sharply pronounced character. Deep shadows form under the eyes; the latter develop a dull lustre and sorrowful expression. The voice receives a sharp by-sound. Short but distinct hairs appear on the face, instead of the former soft down. The cushion of fat under the skin diminishes, and this is especially noticeable in the breasts, which become smaller, and often also flaccid and

pendulous. On this account the neck appears thin, the shoulders angular, and the upper ribs and collar-bones very prominent. Moral indisposition and all sorts of nervous complaints are frequent accompaniments of these conditions. A regulated sexual life, such as our social institutions make possible for woman in the form of marriage only, would act like a perfect source of youth. Thus Nature has her fixed laws, which demand their due with inexorable severity.

Among uncivilized nations there are no old maids. With them it would be something unheard of for a sexually mature girl not to become the wife of some man, either for an indefinite period or for a lifetime.

The Pelvis and its Organs in Various Nationalities.—Apart from the peculiarities which distinguish the pelvis of the man from that of the woman, there are definite varieties of pelvis among the females of the several human races which, like the various types of skull, furnish ethnographers with means for racial differentiation. Whilst the oval form of pelvis is peculiar to the Caucasians, that of the Mongolians is quadrilateral, that of the Americans round, and that of the negresses cuneiform (wedge-shaped). As regards capacity, too, there are many varieties, and it is said that Englishwomen possess relatively the largest pelves, Holstein women coming next after them.

There is no doubt that the diet, mode of life, as well as customs, have a certain influence on the form of the pelvis. The kind of dress generally in use may have some effect upon the growing pelvis in mechanically altering its shape, and a similar result may arise from prolonged attitudes in certain positions or from some special form of activity. Thus, for instance, negresses through carrying their children on the buttocks often develop a curvature of the spine, and consequent displacement of the pelvis.

The amount of fat on the buttocks also shows many variations, thereby influencing their external appearance. Australian women have as a rule very little fat, but Bush

women and Hottentot women present occasionally immense buttocks, and this is regarded as a special sign of beauty.

The external genital organs likewise present, as regards position, size, etc., special peculiarities. In the women of some nations they are situated more anteriorly—for instance, in Frenchwomen, Spaniards, Italians, and Southerners generally; in those of others more posteriorly—for instance, in English, Dutch, and Australian women.

There are probably no racial differences as far as the internal organs of generation are concerned.

The Female Breasts.—In speaking of the racial form of the female breast, one does not generally think of it as it appears during child-bed or lactation, or when undergoing the changes brought about by advancing age, but as it is in sexually mature young girls at their best. Considerable varieties of form are here noticed in different races. Sometimes the nipple is small and flat like a little button; sometimes more massive and of conical shape, with a broad base and rounded point; sometimes large and cylindrical, almost like a finger. Like the nipples, the areolæ round them also show considerable differences; sometimes they are pale, and sometimes dark red; sometimes brown, and even almost black, in colour. Sometimes they form small and sometimes large, and even enormous, surfaces; sometimes they project lightly, and sometimes prominently, like half-spheres from the curvature of the breasts; and sometimes they are separated from the latter by a pronounced circular constricting furrow.

Physiology has given us proofs that the breasts belong to the sensual organs. The touch and gentle irritation of the mammary nerves are capable of producing by reflex action contractions in the uterine muscles, and in this way a pleasurable sensation in the entire organism. During sexual excitement the breasts swell and the nipples become stiff and erect. After conception and child-birth, the breasts have quite a different signification for both mother and child.

Among barbarous nations and among those living in a semi-civilized state, it is quite customary for the mothers to suckle their children; and it is, unfortunately, the women of the most civilized countries who neglect this duty either willingly or because of the physical inability of the mothers to fulfil it. This is the case with the old Hindus, the Japanese, the Chinese, and, above all, with the European nations, and chief among them the Germans and the French.

Under normal physical circumstances it is usual for Europeans to suckle their infants for about a year. Country people and also town proletarians continue it sometimes up to two full years, and even longer. A lactation of two to three years is practised by many women, mostly out of Europe, and there are authentic reports that they prolong it very often for many years, even up to the fifteenth (Eskimos). The reasons for this are, on the part of the child a certain feeling of satisfaction, and on the part of the mother a pleasurable sensation. The general opinion that so long as a mother suckles her child she runs no risk of conceiving has also something to do with the matter.

Prolificness.—Most nations in the world desire large families, and the fruitfulness of the wife is regarded as a special blessing and high conjugal bliss. Sterility is looked upon as an imperfection of the wife. Where the evil cannot be removed, where it is not possible to break the spell adhering to the wife or to appease the anger of the deity, the woman is often turned away. As to the cause of sterility, there existed in olden times, and exist even yet, among barbarous nations all sorts of superstitions, but the recognition is gradually advancing that abnormal physical development or diseased conditions in the wife must be responsible for it.*

From times immemorial endeavours have been made to

* A high regard for fruitfulness is not common to all nations; some regard it even as something contemptible and animal-like (Greenlanders). In Europe also and among many civilized nations generally,

counteract unfruitfulness, and all sorts of mysterious procedures have been adopted, such as medicines and mechanical remedies, baths, appeals for Divine help and for supernatural human aid, sympathetic remedies, the invocation of assistance from dead persons, etc.

On the other hand, there are occasions when temporary or permanent unfruitfulness appears to be desirable. Preventive measures of various sorts have been recommended—for instance, the interrupted form of intercourse,* drugs and mechanical appliances, etc. They are employed more by civilized than by uncivilized nations.

Considerable differences exist in the fruitfulness of different races, and occasionally it is possible to discover the causes by which these differences are produced, for it does not by any means follow that they are due to racial distinction. Closer investigation shows that other factors are also at work. One of these is the moral condition of the population, its social state, and associated with it the relative ages of the procreators to one another. We may doubtless regard as a favourable sign of the well-being of a nation its constant increase by means of a growing number of legitimately born children, whereas a gradual decrease of the latter is a sure indication of a morbid state of morality, or of social and political decay.

It has been ascertained that marriages are most fruitful when husband and wife are of the same age, or when the husband is from one to six years older than the wife. Early marriages favour sterility; the thirty-third year in the man

---

the joy at accessions rapidly following one another is very small. The Roman Emperor Augustus fixed definite penalties for childlessness. Unfruitfulness is considered in the Orient as a disgrace, and Mahometans as well as the Eastern Jews regard it as a ground for divorce. The Turkish woman who has no children is but little respected. Chinese women look upon large families as the greatest blessing. The nations of Africa also consider childlessness as a disgrace.

* See the next article.

and the twenty-sixth in the woman is the period when fruitfulness reaches its highest point; from that period it gradually begins to diminish. A great deal depends, of course, also on the earlier or later beginning of puberty and on climatic conditions.

It is known that in the Southern countries, with Latin populations, marriages are as a rule entered into earlier than in the North, partly on account of the earlier appearance of physical and social maturity among the inhabitants of the former, and partly because, generally speaking, there is not so much wanted to establish a household and to maintain a family, and a livelihood is more easily gained than in Northern countries. Moreover, almost all Southern nations are more inclined towards matrimony than the more careful and circumspect Northerners, especially of Germanic Europe. It is consequently not so much race and climate as a state of civilization brought about by conditions of development, and the mode of life regulating the sexual relations, which are the decisive factors. This accounts for the fact that different nationalities living in the East under the same climatic conditions exhibit different degrees of fruitfulness. Thus, in Greece the Jews and Armenians are very fruitful, the Greeks less so, and the Turks least of all.

The number of births in North America is diminishing; the disinclination of the American women to assume the obligations of motherhood is not unconnected with this diminution.

European families emigrating to the tropics show a diminished fruitfulness, and a constant supply of fresh European blood is required for the purpose of keeping that fruitfulness alive.

It is also to be taken into consideration that favourable circumstances exert in every population a great influence on the procreation of descendants, but that numerous incidents, such as the overburdening of the female sex and the frequent abortions resulting in consequence, premature marriages, the

prevalence of certain diseases, debilitating habits of the male sex, etc., tend to prevent a great increase in the number of births. This is probably also the cause of the relatively smaller fruitfulness shown by some nations.

Accidental Miscarriages.—Not a few nations of the earth suffer greatly from natural miscarriages. In very many cases the reason is to be looked for in an irrational mode of life, and among uncivilized nations to a great extent in the overburdening of the women.

Thus, the cause of the remarkable unfruitfulness in New Zealand lies not only in the infanticide prevalent there, but also, probably, in the severe manual labour which the women have to perform, and in the hardships connected with their nomadic life. Many of these women are also in the habit of carousing all through the night, when they execute to musical accompaniment exciting and obscene dances, of which rotation of the pelvic region is a distinguishing feature.

Nevertheless, a certain physical predisposition of such nations to miscarriages must be presumed, seeing that other barbarous tribes suffer very little from them, though their women also work very hard and during pregnancy, too. This is, for instance, the case among the lower classes in China, where women are employed in the very laborious occupation of rowers. On the other hand, the rich Chinese ladies, who on account of their mutilated feet are obliged to lead a sedentary life, are very much given to miscarriages in consequence of their want of vitality. In Persia, though the women ride on horseback in the same way as men, even when they are pregnant, natural miscarriage is very rare.

As a cause of miscarriages we may also mention a certain kind of manual treatment which pregnant women undergo among some nations—*e.g.*, the kneading of Mexican women in the seventh month, a special sort of massage employed by the Javanese, the custom of very hot baths, as practised in Turkey, etc.

The influence of a strange climate has also been accused as

being an occasional cause of miscarriage, perhaps less on account of the high temperature than because of the malaria so generally prevalent. Acclimatized individuals are less threatened than new arrivals. Among the natives of Cayenne and Guiana miscarriage is rare, but it is more frequent among European women who arrive there in a condition of pregnancy or who become pregnant shortly afterwards. In the Nile countries, also, European women miscarry very often; so they do when living in India during the hot season; the same thing may be said with regard to the tropical parts of Brazil.

Of European women, it is generally supposed that French women are exceedingly inclined to miscarriages, perhaps because of the frequency with which they bathe and on account of the anomalies which their genital organs very often present.

Premeditated Abortion.—It is not correct to regard artificial abortion as a morbid outgrowth of civilization, as semi-civilized and even many barbarous nations practise it as well. From this we may conclude on the one hand that the unborn child is considered of very little value, and on the other that the danger from abortion to the mother is not thought to be very great.

By far the most frequent and most usual cause of abortion is the desire to remove a dishonourable pregnancy; next to it are pecuniary considerations. Fashion also is an important element, as it is with some nations against established custom to have children in the first year or two after marriage, or more than one or two children altogether; there is, further, the disinclination of the women to undergo the inconvenience of lactation or the trouble of bringing up children. Other causes are jealousy, female vanity, and other such defects.

It is therefore seen that abortion is not, as is frequently maintained, a result of degenerate social conditions such as constitute the drawbacks of a state of civilization. The evil

is older than civilization; it was only gradually and slowly that the conscience of the people awoke to the fact that a premeditated interference in the course of a pregnancy is a wrong and sinful action. Laws and religions have not, however, hitherto proved strong enough to remove the evil entirely, and much remains yet to be done in the direction of an alteration in the moral conditions of the people.

VI.

SEXUAL HYGIENE IN MARRIED LIFE.*

By PROFESSOR P. FÜRBRINGER (Berlin).

If the sexual life of married persons is to be led in accordance with medical opinion—that is, in such a manner as not to prove injurious to either partner—certain hygienic regulations must be followed and certain conditions observed.

There is always a certain amount of 'offensiveness' in the treatment of subjects pertaining to the sexual functions. But it is the duty of the medical man to answer conscientiously, and to the best of his ability, questions relating to health addressed to him by those seeking his advice; and it is even permissible sometimes to exhibit a certain inquisitiveness into the most intimate details of married life. He is but a poor doctor who cannot make his patient realize that idle curiosity is not a part of his profession! Attention has recently been called by a lady author to the evil consequences often resulting from a neglect on the part of many male doctors to inquire into the moral side of the married life of their female patients.

Although it is but rarely that the physician's advice is sought on the question of the technique of the sexual act, it must be admitted that there are occasions when such advice is desired. The chaste young man is not absolutely extinct,

* It is well to remind the reader that this work was originally written by medical men for medical men, and that the passages reproduced here are given in the words of their respective authors, as far as this can be done in a book intended for the general public.—Translator.

not even in the large centres of population; and from my own personal knowledge I can say that there are a fair number of inexperienced individuals whose questions to the doctor on their approaching marriage are downright sincere.

In the first place there is the question of the position to be assumed during the exercise of the marital act. What is natural is not always obvious, and for this reason a word of advice on the point is not out of place. Many a case of so-called impotence is nothing but inhibition, depending entirely, or to a great extent, upon the false modesty and awkwardness of the female partner, and could soon be set right by a proper medical consultation in her presence. And how often do otherwise highly intelligent young husbands confess ignorance as to whether they perform their marital duties in a normal manner? Doubtless a great deal of tact is in such cases required, especially in the presence of female modesty, the more so as the number of virgins contracting matrimony is far greater in proportion than that of chaste young men, not only among the upper classes, but also among the lower. I decidedly believe this to be the case, although the wife is generally the better informed partner in matters pertaining to the married state, and in spite of occasional astonishing statements to the contrary.

But while it is the bounden duty of the physician to condemn emphatically any other but the natural position, not only on moral grounds, but also on account of the mechanical injuries which may arise in consequence, there are occasionally circumstances which render a departure from the normal procedure permissible, and even medically advisable.

It is also necessary that the sexual act shall take place without the application of force. This injunction is very much offended against, especially by brutal husbands, and also by some men whose rough nature does not enable them to appreciate the greater sensitiveness and finer structure of the female organism. What disastrous effects may result

from the non-observance of this recommendation we can see from reports, no longer sparse or doubtful, which are quoted chiefly in books on medical jurisprudence.

While injury to the male genital organs in consequence of intercourse is exceedingly rare, sad accidents to the female partner are, fortunately, also exceptional, and to a great extent dependent upon concurrent special circumstances, such as extreme youth or old age, pregnancy, child-bed, abnormal conditions of the genitals, unnatural position, intoxication, etc. But even the so-called normal perforation of the hymen may prove highly injurious by causing profuse hæmorrhage or inflammatory conditions, especially where a certain amount of force is needed to rupture a somewhat resisting membrane or where intercourse has been resumed before the injury has had time to heal up.*

I am perfectly satisfied that the number of young married women who have a lasting painful recollection of their first night after marriage exceeds by far the number of those who venture to consult a doctor, whereas it is but rarely that even very sensitive husbands suffer more than temporary inconvenience from slight superficial abrasions as a consequence of their exertions at the commencement of their married life. In any case, even under normal conditions, where both husband and wife are in perfect health, it is incumbent on the gentle-mannered husband to pay every consideration to the tender feelings of his wife; he must endeavour to use that discretion for which Shakespeare's Imogen begs so diffidently from her husband Posthumus. The nuptial injury to the newly-married woman may be the result of mental anxiety, mixed with a fear of something unknown, some foreboding of evil. As experience has frequently taught me, even a well-beloved husband is capable of inflicting deep and

* In some countries—for instance, China, India, South America—the hymen is ruptured by the mothers or nurses of the children at a very early age, not so much for the sake of cleanliness as for the purpose of preparing them for their sexual life.

lasting wounds to the feelings of his young wife, if he does not know how to restrain himself in the first night after the marriage!

As regards the time when the marital act is best exercised, it would appear that the hour chosen almost instinctively by the majority of people—namely, the evening or the time of going to bed—is hygienically correct, if only on account of the necessary undressing and of the fatigue succeeding the act. Nevertheless, there are married couples who choose the morning time, and others who prefer the after-dinner hour or the time after their principal meal. In the one case it is probably the renewed vigour after a long sleep, in the other an increased desire through food and drink, especially alcohol, which is the determining factor. In my opinion such practices should be opposed, especially after heavy meals. The reason lies in the danger of serious accidents in the case of elderly people, particularly where there is a tendency to apoplexy. Gastric and intestinal troubles are also said to occur frequently if the sexual act is exercised immediately after a meal. As regards intercourse during alcoholic intoxication, it is dangerous on account of the prolongation of the act which it produces, and is therefore equal in its effect to sexual excess. The sexual act should never take place in tight-fitting clothes.

Otherwise I am not in a position to lay down any rules with regard to the choice of time, particularly in respect of a sexual periodicity. Though certain individuals do occasionally exhibit within physiological limits a certain regularity in the fluctuation of their sexual desire, it does not seem proper to speak of weekly cycles and monthly crises. For it is just this characteristic differential quality which distinguishes man from animals. Whilst Nature has in the case of many of the latter ordained that the powerful sexual desire which is necessary for the continuation of the species shall recur periodically (rut), she has been so generous to man as to provide him with a continuous sexual ability for the whole of his sexual life.

A greater difficulty is experienced when we come to the consideration of the question how frequently the sexual act should be exercised. That the point is not without importance is shown by the fact that ancient legislators have dealt with it in a practical manner. Zoroaster, Solon, and Mohammed prescribe, under normal circumstances, three to four connubial embracements in a month. The Talmud differentiates in its injunctions according to the social position and vocation of the individual. Luther's dictum 'Die Woche Zwier' (Twice a week) is well known both to doctors and laymen. In modern times such numerical prescriptions have fallen into disuse, probably because it has been recognised more and more that even within physiological limits the sexual ability of individuals differs very much, and that it is exceedingly difficult to draw the line between normality and abuse. Even in the same individual the normal sexual power fluctuates within wide boundaries. Nevertheless, I am of the opinion that extraordinary deviations from the average are very rare, and that a numerical guiding rule for the ordinary man must not be looked upon as something 'ridiculous.' There must be some general principle, unless we wish to leave the matter entirely to the decision of each individual, and to let everyone find out for himself, on the basis of *experientia docet*, what he should do. But I have too often had occasion to explain to guileless young couples the connection between cause and effect to allow myself to rest satisfied with a policy of *laisser faire*, or to place any reliance on individual discretion and self-control. To prevent mischief I have, therefore, for many years now unhesitatingly recommended under anything like 'normal' circumstances—and it is for the doctor to find these out—50 to 100 single acts in the course of a year. This limitation, which takes into account the menstruating periods—but not, of course, pregnancy, long absence of husband or wife, or more or less chronic illnesses—leaves sufficient room for the fluctuations due to various external causes as well as to different physical and psychical conditions.

It is also in agreement with one's notion of true moderation, and rather more reasonable than the overcarefulness of the 'model man.' The sexual desire has been compared to the desire for drink and food which is being kept up by regular gratification; but, then, it must also be remembered that excess in drinking and eating must be avoided, too. For this reason I always answer in the negative all questions as to the advisability of immediate repetition of marital intercourse, just as I oppose the practice of double meals. Still, I do not believe in undue pedantry. Occasional outbursts of exuberance in young people who are in good health and free from worries are quite pardonable, and not likely to be harmful. It is, however, different where May has wedded December, and where the old man wishes to please a somewhat frolicsome young wife.*

How should married people conduct themselves during menstruation? Scientific literature has not busied itself much with this question, perhaps because it was thought self-evident that no man would come near his wife while she is menstruating. But that the opposite of this is not unknown in practice, I can tell from a good many confessions made to me. It is therefore necessary to state here emphatically that intercourse during menstruation is unpermissible, even if the continence necessitated by this injunction should extend over periods as long as a fortnight, or, in other words, over the half of the sexual interval. I do not, however, regard it as a calamity if intercourse happens unknowingly to take place simultaneously with the commencement of a period, or if a period which is considered to be at an end is resuscitated by a sexual act.†

The sexual hygiene of the married state during pregnancy is not less important than that during menstruation. On the

* It would not be amiss if the legislature, which recognises a minimum marriageable age, would also take into consideration this aspect of the question.

† More upon this interesting subject will be found in the next article.

contrary, it deserves even greater attention, since, on account of the much longer duration of the period in question, there is a correspondingly greater danger of undesirable conduct on the part of the husband arising from the enforced continence. There is, moreover, a new element of risk in the form of miscarriage, which is a source of peril to the health of the mother and to the life of the fœtus, though there is, perhaps, a certain exaggeration in connection with the subject. At all events, opinion on this point is by no means unanimous, and while some are in favour of considerable restriction of the marital intercourse during the first half of the period of pregnancy, and total abstention in the second, others recommend such restriction and abstention during the last few weeks only. My practice is to advise, under ordinary circumstances, entire abstention from intercourse from about the sixth or seventh month. Of course, where the conditions are in any way abnormal—for instance, where there is an inclination to miscarriages—such abstention must commence at an earlier period, or even extend over the whole time of pregnancy.

I am in the habit of giving this advice to my patients because I do not think it desirable that husbands should have, in a very prolonged abstinence, an excuse for seeking sexual gratification elsewhere. Not that I am a believer in the theory that abstinence is injurious to health. On the contrary, I have always opposed that belief. I can hardly remember a single case of a healthy individual in whom I could discover no other cause but continence for conditions of ill-health. People do occasionally complain of discomfort, of a feeling of pressure or of tension, but these inconveniences are easily overcome, and without any 'artificial correction.' Besides, there is the self-regulating action of the normal emissions which must be borne in mind. It is true that some eminent experts are of a different opinion, and that this opinion is based upon genuine cases of disease due to continence; but I am inclined to regard these cases as exceptions

confirming the rule. I condemn the doctrine that it is dangerous to suppress natural desires, and that man should not leave unused any portion of his body or resist the gratification of natural requirements. I cannot allow a comparison between the sexual desire and such natural instincts as hunger or thirst, because food and drink are under all circumstances vital necessities. One might as well advocate drunkenness because it is due to a craving for alcohol! I may say here that for the same reason I never dare to recommend to unmarried young men the gratification of the sexual desire as a curative means.

But while abstention during part of the period of pregnancy is not only a reasonable demand, but physiologically possible, we must not forget that there is an aggravating element in the matter—namely, the former regular performance of the sexual act, and the fact established by experience, that sexual abstinence when compulsory is more difficult of practical realization than when self-imposed or voluntary. Under such circumstances a certain amount of discretion is required from both doctor and patient, and rather than see the husband adopt devious ways leading to adultery, or even worse things, I believe it to be the lesser of two evils to allow natural intercourse even in highly advanced pregnancy.

What has been said above applies equally to the conduct during the period of involution following a confinement or miscarriage. Abstention is necessary, not only during the first week or two, but for a period extending approximately over six weeks—that is, until the wife is able to resume her ordinary mode of life. Where the circumstances are favourable, however, there is no hygienic objection to the doctor's permitting a return to intercourse one or two weeks earlier.

We are now approaching a subject of the greatest importance, not only to the married individuals as such, but to the entire community, to the State as a whole—namely, the question of conception-preventing measures in relation to

married life. If numbers of medical men find it impossible, in view of all the circumstances connected with the subject, to issue a general prohibition of the practice, it does not follow that they are indifferent to the interests of the State, which requires a constantly increasing population on the basis of legitimate marriages. It does not mean a refusal to recognise the dangers associated with an exaggerated adoption of neo-Malthusian principles. But I must say that I agree with the sentiments recently expressed by a well-known neurologist: 'I claim for every medical man, who is a true friend and counsellor to his patients, the inalienable right and duty to utilize his own personal observation and conscientious knowledge with a view to fixing the limit of procreation in every given case, and to act accordingly.' 'Malthusian measures become a necessity, sooner or later, to every married couple, where the wife retains her conceptive faculty, and the husband does not consider that he has an incontestable right to gratify brutally his sensual desires without regard to the weal and woe of his partner and of the children already born.' I do not, however, propose to go into the question whether the increase in the artificial prevention of conception is to be regarded as a 'sign of decadence' or, rather, as an 'uplifting of the level of our moral decay.' My object is to deal with the measures generally adopted from the medical point of view, and to discuss their hygienic value. Some of the cruder methods in vogue in some places and among some nations can hardly be regarded as hygienic precautions, and we may therefore leave them out here altogether. Others, however, are so much in use by married couples in most civilized countries that we are no longer justified in passing them over in silence.

A conception-preventing practice which is very prevalent among all classes is the so-called 'interrupted intercourse,' a form of marital relationship which does not permit the natural consummation of the sexual act, but interrupts it by a withdrawal at the decisive moment. That the practice, if

carried out for years, is capable of producing a certain injurious effect upon the centres of innervation cannot altogether be denied. But we must not forget that ejaculation takes place, nevertheless, and that there consequently is a consummation of the orgasm equal to that of normal intercourse. I must therefore, on the strength of an extensive experience, say that I cannot, generally speaking, from a hygienic point of view, impute to interrupted intercourse any serious harmfulness, and this view is shared by many eminent men. On the other hand, there are opponents to this opinion, whose positive experiences we are bound to respect, and who maintain that the practice is followed sooner or later by diseased conditions, especially of the nervous system. However this may be, I am not in favour of a general matter-of-course prohibition on the part of the medical profession. Each case must be decided on its merits.

As far as the reliability of the method is concerned, that is another matter. Although it is by no means insignificant, it is certainly not absolute. I cannot, therefore, recommend interrupted intercourse as the best conception-preventing measure. It is neither absolutely harmless nor absolutely reliable.

Still less reliable are vaginal irrigations with antiseptic solutions, or the introduction of suppositories or small sponges, etc., impregnated with disinfecting substances. These proceedings are, moreover, very troublesome, and in not a few cases the actual cause of disease.

I may say the same thing with regard to occlusive pessaries. Though they are free from the occasional inconveniences of interrupted intercourse, they show very little consideration to the wife's comfort. Besides, they suffer from the defect that their introduction requires as a rule a skilled hand, and that they easily get out of position. In some of my patients they have caused painful and persistent inflammations.

As relatively the most perfect anti-conceptional remedy we

must regard the condom, though in simplicity it is inferior to the interrupted form of intercourse. It is trustworthy, harmless to both partners, associated with a considerate regard for the feelings of the wife, and a comparatively cleanly manipulation, qualities which no doubt account for its enormous and growing popularity. I must, however, express a word of condemnation against the so-called 'exciting condoms.' They are disgusting appliances which serve no other purpose than to increase the sensual sensation, and should not be used by any self-respecting man. That they are an imitation of the 'ampallangs' employed by tribes in a wild state of nature does not in the least detract from their objectionable character.

In conclusion, I should like to observe that, in addition to the daily cleanliness as a procedure calculated to be beneficial in the sexual hygiene of married life, there are two powerfully efficient factors in that direction—namely, travelling and physical exercise. Particularly where the mental activity and exertion necessitated by the husband's vocation are greatly drawn upon, there is not much left for the sexual intercourse of married life, and it is in such cases that travelling shows most excellent results. Not fatiguing travelling, but comfortable and enjoyable journeys to pretty places—but without books or other material for study. 'Procul negotiis' is indeed an essential condition if the hitherto 'neglected' wife is to be made happy on these excursions, if the diligent scholar, the sedentary and meditating lawyer, the overworked medical man, or the busy merchant, is to retain or regain the affection of his life-partner whom he is taking to foreign climes, to the delights of Nature, or to the joyous bustle of the world without.

As to physical exercise, walking, mountain-climbing, and gymnastics are for obvious reasons the forms most frequently employed; but I should like, from personal experience, to say here a word of praise for that very useful and exhilarating mode of exercise, cycling, provided, of course, it is not

indulged in beyond hygienic limits. It is because it enables the cyclist to cover long distances by easy muscular exercise, and thus to get into the fresh air, that it is so vastly superior to indoor gymnastics or automobilism. Besides, it fosters courage and self-reliance, and produces a subdivision of activity in the cerebral centres of the cycling brain-worker. Its disadvantages from a sexually hygienic point of view have been greatly exaggerated.

VII.

MENSTRUATION, PREGNANCY, CHILD-BED, AND LACTATION, IN RELATION TO MARRIAGE.

By PROFESSOR R. KOSSMANN (Berlin).

The processes of menstruation, pregnancy, child-bed, and lactation, although they are natural conditions in the normal course of a woman's life, may nevertheless be regarded as diseases to a certain extent, because they are unavoidably associated with pain and functional disturbances, or at least with diminished resistibility.

Taking menstruation first, we find that, even where the phenomena associated with it do not exceed the normal limits, there are still a number of symptoms which constitute a disordered state of health, or at least alterations in the subjective condition. Before the commencement of the discharge the woman experiences pain (although moderate in degree) in the loins and in the back, a sensation of heaviness and downward pressure in the abdomen, a feeling of tension in the organs of generation, and often also in the breasts. Accompanying these symptoms there is an increased irritability of the nervous system, an excitation of the sexual faculty, and a depression of the mental condition.

The importance of menstruation from the standpoint of married life, which concerns us here, lies principally in the fact that during its presence sexual intercourse is by established custom suspended. But as the sexual desire in the woman is towards the end of menstruation increased, this abstinence is undoubtedly antagonistic to the natural instinct,

and possibly the cause of the mental depression and nervous irritability which accompany the monthly period. That the custom of abstention is universal, and even, according to the Parsee, Mosaic, Mohammedan, and possibly, also, other religions, the outcome of a Divine commandment, is probably due to the view prevalent among the ancient civilized nations that the menstrual blood, and consequently the menstruating woman, is unclean. The old Parsees used to confine their menstruating women in closed rooms so that they should not come in contact with other people; the Jews were not only prohibited from having intercourse during menstruation, this being a criminal offence punished with the death of both parties, but the couch of a menstruating woman and everything that came in contact with it were also considered unclean.* The Chinese and Japanese have similar customs, and the same may be said of almost all half-civilized races.

Most extraordinary notions of the dreadful poisonousness of the menstrual blood have penetrated from the popular superstition of Oriental nations into the writings of Plinius and Columella, and from these into the medical literature of the Middle Ages. Seed coming in contact with menstrual blood was supposed to turn barren; fruit would drop from the trees against the foot of which a menstruating woman had been leaning; knives would get blunt by being breathed upon by them, mirrors tarnished if looked into by them. The rabies of dogs was attributed to the partaking of menstrual blood. The fermentation of new wine was sure to be interfered with if a menstruating woman entered the cellar. (This superstition is still prevalent in the Rhine district, and also in other parts.) Finally, intercourse with a menstruating woman was supposed to be productive of leprosy.

Such deep-rooted superstition was bound to result, in spite of the indifferent attitude of the Catholic Church, in establishing abstention during the monthly periods as a universal practice.

* Lev. xv. 20-23.

Those who are about to marry generally take this circumstance into account, and so the custom has arisen to fix the wedding-day on a date not very far removed from the cessation of the previous menstruation. The neglect of this precaution may lead to most disagreeable mental depressions by compelling the newly-married couple to abstain from intercourse at a time when the sexual excitement is at its highest.

It is, of course, questionable whether this abstention is in reality a hygienic necessity, or only a very ancient mistaken prejudice. There are weighty reasons in favour of the latter alternative. That the rut of animals corresponds to human menstruation in its main points can no longer be denied. But in animals which possess a rutting period intercourse takes place just during such period, and in most of them during such period only, as at other times the females experience no sexual desire, and do not exercise any attraction upon the males. Even if we ignore the Darwinian theory altogether, we cannot quite conceive how an homologous process could take place in homologous organs of most living creatures naturally, and even necessarily as a means of propagating the species, and yet that the same process should in the case of the genus homo only be unnatural and injurious. Moreover, the instinct which compels rutting animals irresistibly to copulate is almost without an exception present in women in the form of a distinctly increased sexual desire, though, like all other human instincts, it is successfully combated by various psychical and physical inhibitory processes.

This contention is not without practical importance. It is quite possible, and even probable, that the sexual frigidity of so many married women, which is so disturbing an element in the reciprocal relationship between them and their husbands, and often a cause of conjugal unfruitfulness, is only an extra-menstrual one. Then there is the case of those women who exhibit towards the end of menstruation a noticeable, or even a very disturbing, mental depression, and a marked disagreeableness of temper. In such marriages it

is therefore advisable that the medical attendant should inquire into the circumstances, and use his discretion as to whether he should recommend an attempt at intra-menstrual intercourse.

At all events, every married man must bear in mind the naturalness and inevitableness of the nervous irritability in menstruating women. He must treat his menstruating wife as if she were recovering from some slight illness; he must do all he can to diminish the extent of her worries; he must keep from her bad news or sorrow; he must not retort on occasional outbreaks of unjustified temper, but rather try to avert them by tact and good-humour. It is almost always during menstruation that the first clouds appear on the matrimonial horizon; the husband who is aware of the importance of these 'critical days' will know how to take the necessary means for their prevention.

Pregnancy.—Let us now consider the second of the physiological diseases—namely, pregnancy.

If pregnant women undergo a certain amount of bodily suffering, this is principally due to the fact that the fœtus lives as a parasite at the expense of its mother, that it consequently draws from her the entire material required for the formation of its body. There is thus caused in the first instance a more or less complete exhaustion of the reserve substances stored up in the maternal organism, and, secondly, an increased demand of nourishment and oxygen. The necessary consequence of the satisfaction of this demand is an increased activity on the part of the digestive and secreting organs—the stomach, the intestines, and the kidneys. All this, in its turn, gives to the heart of the pregnant woman a greater amount of work to accomplish. Finally, pregnancy creates disturbances of a purely mechanical nature. The increasing weight of the pregnant womb interferes with the movements of the body, and is a constant burden to the dorsal region. The abdominal walls become stretched, subcutaneous ruptures occur in them, the muscles get over-

distended, and the abdominal pressure is diminished. The bladder is encroached upon and its capacity decreased, and the action of the bowels is rendered more difficult.

It is certainly true that the organism is capable of adapting itself, to a certain extent, to these purely objective changes in the conditions. Nevertheless, this is only partly the case, and it is difficult to say where normality ends and morbidity begins. A number of the disturbances which accompany pregnancy may assume the character of disease proper, necessitating medical interference, though in the majority of cases they are of a far less serious nature. At any rate, they are of enormous importance to the married state.

Where a marriage has been contracted in the expectation that the wife will participate in the earning of the livelihood, pregnancy compels her at least during a part of its duration to desist from such participation wholly or partly on account of her diminished working ability. Even the fulfilment of the ordinary house duties devolving upon the majority of wives may become so difficult that the household is bound to suffer. The lesser resistibility against disease often renders the wife totally unable to do any work, and even necessitates attendance upon her on the part of other people. Moreover, the psychical irritability on the one hand, and the depression, or possibly the melancholia, on the other, make her more or less incapable for other work than mere mechanical duties. The proper supervision of the entire household, the firm but just management of the domestic servants, the resolute bringing-up of the children, the considerate and patient treatment of the husband who comes home tired from his hard daily work—all these conjugal duties, which are no doubt of the highest importance, may suffer considerable neglect in consequence of such psychical disturbances of pregnancy.

Against all these facts stands out prominently the circumstance that the procreation of children is from the standpoint of morality as well as from that of patriotism the main

object of marriage, and that maternal happiness is under anything like normal conditions the highest and most ennobling sentiment of woman. For this reason conjugal pregnancy ought never to be renounced willingly on account of the disadvantages and dangers mentioned above. It so happens, moreover, that such a renunciation is only possible by abstaining from sexual intercourse altogether, or by the adoption of certain measures preventing conception. But such an abstention is, apart from the above-mentioned moral and patriotic motives, very much to be deprecated. Married women are seldom so indifferent in matters sexual as to welcome permanent abstinence. In most cases they will regard the husband's abstention as serious neglect, will direct their attention to other men, and be driven even to adultery. And as far as the husbands are concerned, it is very rarely that they will refrain from intercourse altogether. As a rule they will look for it elsewhere, and thus neglect their homes and undermine their health. As far as the anti-conceptional measures are concerned, it may be said that those which are in any way reliable are very often injurious to health because of the excessive irritation of the nervous system which they produce.

There remains, therefore, for the amelioration of the injurious accompaniments of pregnancy nothing but a rational hygiene of pregnancy. What this hygiene dictates is clear from what has been said. In the first instance, it is evident that a marriage which depends on constant physical employment on the part of the wife is wrong in principle. There is every justification for the proposal to introduce legislation restricting the employment of pregnant women in certain trades, and the idea of a pregnancy insurance which shall enable pregnant married women to receive during their pregnancy amounts corresponding to their loss of wages deserves every encouragement. It were highly desirable that such amounts should include also stated sums for the purpose of providing the pregnant woman with some domestic assist-

ance, so that she should be spared such hard work as carrying coal or water, etc., where she is in the habit of doing so under normal circumstances. There is also great necessity to protect pregnant women against infection and against the vicissitudes of the weather. Where there is a predisposition to certain diseases—and especially to affections of the kidneys, lungs, heart, or the nervous system—a suitable prophylaxis must be instituted, and where symptoms of these diseases have already made their appearance the required treatment must be undertaken with particular care, or the pregnancy interrupted if the necessity arises. As to what 'necessity' means in this connection, there is no unanimity of opinion. The law-books do not contain any definite enactments declaring when the induction of abortion by medical men is exempt from punishment. The Catholic Church has only recently condemned artificial abortion under all circumstances, even where it is the only means of saving the mother's life. Most German doctors, however, consider it permissible, or even indicated, as a life-saving remedy. Some go even so far as to demand it in cases where there is danger of considerable aggravation of an existing disease in a pregnant woman. Under such circumstances the medical man must for the present be responsible to his own conscience for the decision to be taken in every single case.

Considering that the object of marriage is not the procreation of descendants of any kind, but of vital descendants who shall in their turn be capable of propagating the race, the artificial determination of the pregnancy has also been recommended in cases where, on account of the physical or mental illness of the pregnant woman, it is reasonable to expect sickly and inferior children. It is certainly true that the prevention of an inferior progeny being brought into the world would prove of enormous benefit to the national welfare, but one would rather look for the realization of this ideal in a restriction of marriages than in artificial abortion. As long as our moral and religious views do not permit an

interference on the part of the State with the personal right of everyone to choose husband or wife, artificial abortion, on account of the presumably poor quality of the unborn fœtus, is absolutely out of the question.

As regards the hygiene of the mind, it is principally the husband who must attend to it. Good-natured passive resistance in the presence of outbreaks of ill-temper on the part of the pregnant wife; reasonable personal attention to the wants of the household and family, where everything suffers in consequence of ill-management; avoidance of all psychical irritation and mental overexertion through quarrels, exciting literature, heated discussion, theatre-going, concerts, big parties (especially at the pregnant woman's house), irregular meals, and late hours—all these points are of the greatest importance. In the case of melancholic depression, the best remedy is for the husband to express heartily and frequently his joy at the approaching increase in the family and his gratitude to the future mother. The knowledge that the endurance of the unavoidable drawbacks of pregnancy is a necessary accompaniment of an important duty, and that it is being rewarded with love and thankfulness, acts beneficially even in the case of women in whom a hereditary predisposition or complicating diseases are the cause of the psychical disturbance. It is also worth remembering that in some women melancholia arises from a feeling of shame at the ungainly physical alteration in the figure, and that an aggravation will naturally be caused by any apparent neglect on the part of the husband. In such cases the latter must continue to observe most carefully the former relations, and affect a certain tender and chivalrous conduct towards the pregnant wife. As to the utility or injuriousness of sexual intercourse during pregnancy, opinion is not by any means undivided, but experience seems to teach us that it is not necessarily harmful. It must of course be abstained from where there is a tendency to miscarriages, or towards the end of the pregnancy when there is a risk of premature

labour being brought on. All violence must be avoided, and a different position—say a lateral one—may be desirable or necessary. In view of the possible disagreeable effects resulting from a too long enforced abstinence, it is better to insist upon such abstinence only when it is absolutely imperative.

Child-bed.—There is no question that, if not in regard to its causation, at least in that of its course, normal though it be, the lying-in period has the character of disease in its state of convalescence, and that it should be treated as such. It is a pity that relatively only a few married women make use of the superior arrangements and nursing facilities associated with maternity institutions, as compared with what obtains at most private houses. The reasons are not far to seek. Those to whom a separate room at some establishment is a luxury which they cannot afford, especially as it is never possible to foretell with any degree of certainty the exact date of the confinement, and who yet dislike associating with other women of perhaps a different stamp of respectability, can hardly be expected to prefer the greater comfort if it cannot be obtained otherwise than by a certain amount of loss of self-respect. There is, besides, the separation from the dear ones at home for a period of time more or less uncertain, to which only a few can make up their minds. Several attempts have recently been made to deal with this problem, and it is to be hoped that maternity homes like that which has been established at Mannheim, and which is intended for married women only, will find many imitators. In many places charitable societies provide women in child-bed with domestic assistance—a point of the greatest importance, as, when such assistance is wanting, the puerperal woman is often tempted to leave her bed much sooner than it is advisable.

In any case, it is the duty of the husband whose wife has been confined to see that, in addition to the physical comforts necessitated by the situation, she should also receive careful

attention as far as the condition of her mind is concerned, and that all worries and troubles should be kept from her.

As regards sexual intercourse, most races, and especially the Semitic nations, consider a woman in child-bed as unclean as when she is menstruating, and conjugal connection at that time is therefore prohibited. On the other hand, the Catholic Church permits it. In my opinion it is an absolutely reprehensible practice, though it is, unfortunately, more frequent than one would imagine.

Lactation.—In considering, finally, the suckling act, or lactation, we find in it also phenomena which are to a certain extent characteristic of disease. The secretion of the breasts withdraws from the body a considerable amount of nourishment, and sometimes a part of its reserve material, so that it becomes less capable of performing its functions, and even more or less delicate. It also becomes more susceptible to certain diseases, and less resistive against pulmonary phthisis in particular. Lactation makes a woman for the time being sterile. Painful tension in the breasts compels frequent application of the child—about every three hours—or relief by other means; the mother is thus tied to her child, she cannot leave her house for long without it, and is thus incapable of seeking either work or amusement outside. Frequently a permanent loss of beauty is also feared, and not without reason, for the tense virginal breast, with its small nipples, remains flaccid after lactation, and the nipples are considerably larger.

In the unmarried woman these disadvantages are, at least in Germany, amply compensated by the advantages which she gains in becoming a wet-nurse to other mothers' children. This is not the case with married women; but they also derive great advantages from lactation: there is the saving of the high wages and of the keep of a wet-nurse, and, where there is no intention to engage one, the avoidance of the many more or less serious ailments to which infants are subject when brought up on animal milk mixtures or vegetable

substitutes. An important advantage of lactation also lies in the possibility to resume sexual intercourse while it lasts without there being a probability of a speedy new pregnancy supervening. The disadvantages, not only pecuniary but also sanitary, of rapidly successive pregnancies can therefore be avoided with a fair degree of certainty if the mother suckles her own children. Finally, it is worth mentioning that suckling causes contractions in the womb, and that it is of great assistance in effecting a return of this organ to its normal conditions.

It follows from what has been said that lactation is one of the conjugal duties which ought never to be neglected for the sake of the retention of external beauty, or, perhaps, from considerations of amusement. Only where the health of the mother or of the child suffers—that is, where it exhausts the former or does not sufficiently nourish the latter—lactation is to be desisted from.

But, on the other hand, it is a dereliction of conjugal duties to prolong lactation beyond the proper term, to the detriment of the suckling, for no other purpose than the avoidance of subsequent pregnancies. It is generally about the ninth or tenth month in the life of the child that the latter begins to require more food than is contained in its mother's milk. From that time onwards it should therefore be given other nourishment, but its occasional application to the breast, in addition, is not contra-indicated, provided there are no conditions of ill-health present in the mother.

VIII.

CONSTITUTIONAL (METABOLIC) DISEASES IN RELATION TO MARRIAGE.

By PROFESSOR H. SENATOR (Berlin).

We call constitutional or metabolic diseases a group of chronic affections of the entire organism which manifest themselves by definite disturbances in the metabolism, or by general disorders of nutrition in the absence of any local or primary organic disease.

This group of diseases cannot be sharply defined, or separated, particularly from the diseases of the circulating fluid which supplies all parts of the body with the material serving for their nutrition. There are certain diseases of the blood in which the process of metabolism and the entire nutrition of the body suffer to a very great extent, so that these conditions of ill-health may be included in the one group just as well as in the other, if we do not altogether prefer to combine both these groups into one.

On the other hand, it is evident that where the whole organism is affected all individual organs must also be affected more or less. We have examples of this in rickets and osteomalacia, diseases which are undoubtedly based on a disordered nutrition and metabolism, but in which the affection of the bones and the troubles arising from it are such prominent features that there is as much justification for classing them among the diseases of the bones and organs of locomotion as among those of metabolism.

We shall therefore deal in this section with those diseases only which it is not usual to include among the diseases of any special organs—namely, diabetes, gout, obesity, myxœdema, acromegaly, Addison's disease, and scrofula.

Diabetes.—This disease doubtless deserves the first place in connection with the subject which interests us here. Before entering into details, it is necessary to point out that although the diagnosis of diabetes rests upon the presence of sugar in the urine, and can be confirmed by this test only, it does not by any means follow that every discharge of sugar must be regarded as a sign of diabetes. For there are various other conditions in which sugar appears in the urine, though only temporarily—so-called glycosuria or mellituria, with the different forms of which we are not, however, concerned here.

Glycosuria in Pregnancy and Child-bed.—Here we shall only mention the elimination of sugar, not dependent on diabetes, which occurs during pregnancy and child-bed. There are two forms of it, namely:

(1) *Lactosuria*, a discharge of milk-sugar in the urine, which makes its appearance, as a rule, a few days after labour, and in rare cases shortly before it. It results from a congestion and absorption of the milk-sugar from the mammary glands, and is therefore noticed particularly in strong individuals with insufficient elimination of milk.

(2) *The glycosuria of pregnancy*, in which the urine contains grape-sugar, as in diabetes, but only in small quantities, not exceeding, as a rule, more than 1 per cent. Opinions differ as to the frequency of this glycosuria, but this difference of opinion may be due to the different forms of nourishment employed by the pregnant women examined.

Neither the glycosuria nor the lactosuria of pregnant and puerperal women cause any complaints. They are both physiological processes which may, at the utmost, be regarded as inclining to the border of the pathological domain, but they nevertheless deserve, and the glycosuria more than the lactosuria, every attention from the medical adviser, who, if

he does not immediately infer the presence of diabetes, has at least reason to recommend caution for the future to the pregnant woman in question. Because, seeing that glycosuria is probably the result of a diminished power of assimilating sugar, it might occasionally constitute the beginning of a genuine diabetes, especially if it occurs not only after the consumption of sugar, but also after that of starchy food, or if there are also other factors present that predispose to diabetes—for instance, a hereditary predisposition.

From what has been said, it is clear that the medical man who examines periodically the urine of his pregnant patient, though the pregnancy is taking a normal course, is but doing his duty.

Influence of Marriage on Diabetes.—Coming now to diabetes proper, we have first to consider the question whether this disease can be influenced by marriage, and especially whether the individual suffering from it may expect, in consequence of his or her marriage, an improvement or an aggravation in the disease, or a shortening in the duration of his or her life. In other words, are there conditions created or altered by marriage which have an influence one way or another upon the course of diabetes?

Experience has shown that the course of diabetes depends, in the first instance, upon its form. It is well known that there are milder and severer forms of diabetes, according to the tolerance for carbohydrates (sugar-containing or sugar-forming articles of food). Age is also a very important factor. Generally speaking, the course of diabetes in the earlier years to about the middle of the third decade is more rapid and more unfavourable than at a more advanced age. Psychical influences, especially of a depressing character, such as fright, sorrow, etc., act aggravatingly on the disease, and may even, where there is a predisposition to it, form the occasion of its origin.

Pregnancy and labour have also occasionally given rise to diabetes, or caused it to become manifest for the first time. More

frequently these processes lead to an aggravation of an existing diabetes, inasmuch as a milder form may pass into a severe one, or a rapid pulmonary phthisis may make its appearance, and end fatally soon after the confinement. In other cases, death occurs during the child-bed from coma or sudden collapse.

As to how often these fatal events occur, and as to the degree of probability with which they may be expected, it is impossible to say anything definite, as the number of recorded observations on the point is far too small.

Nor are we in a position to say more about the influence which lactation has on the course of diabetes, beyond that it may prove very dangerous.

We may consequently conclude from what has been said that marriage presents, as a rule, no practical risk to a man suffering from diabetes, since most men are not very young when entering the married state, and a rapid course of the disease is therefore not to be apprehended in their case. But where the external circumstances are unfavourable, or where there is reasonable ground for assuming that such unfavourable circumstances will arise later on, the possibility is not precluded that the diabetes may take a serious turn for the worse, and a medical man, if consulted, will have no hesitation to advise that the marriage be not entered into. Where the prospective diabetic husband is too young the same advice is indicated, or at least a recommendation that the marriage be postponed until the thirtieth year has been passed; and the longer that postponement, the better. Of course, if the patient suffers from a serious form of the disease, he must under no circumstances be permitted to marry, because, even if his condition is not likely to be aggravated by the marriage, he has very little prospect of reaching the natural life-limit.

The conditions are different and more unfavourable in the diabetes of females. In the first instance, girls marry, as a rule, at an earlier age than men—that is, at a time of life

when diabetes is less benign in its course—so that the probable duration of life is, to begin with, shortened. In view of the dangers threatened, it is therefore best that young girls suffering from diabetes should not marry. In the case of diabetic women of more advanced age, the medical consent to their marriage can be given only with a certain amount of reserve, as it cannot be said that they run no risk at all.

Transmissibility of Diabetes in Married Life.—A further question is whether the husband or wife runs any special risk through the diabetes of the other partner—that is, not only in so far as a chronic disease, accompanied by painful or dangerous symptoms, is likely to cause suffering and inconvenience to persons living in close intimacy with the patient, but in a specific manner. In other words, can diabetes be transmitted from husband to wife or *vice versâ?* It is some time now since it was pointed out by various observers that diabetes occurs in married couples. In addition, there are some cases known—not many, but sufficient to attract attention—of the presence of diabetes among persons not related by blood and not married to one another, under circumstances which suggest the possibility of contagion.* We must therefore reckon with the remote possibility that, where either husband or wife suffers from diabetes, the other partner may sooner or later also develop the disease. But the degree of probability of this contingency arising is, judging from our present experiences, a very small one—a little greater, perhaps, where the individual running the risk of infection is hereditarily predisposed to diabetes, but, for all that, not great enough to justify any more precautions than a correct hygienic and dietetic mode of life.

Influence on the Generative Faculty.—Diabetes is also of influence in other respects with regard to the course of a marriage. It frequently causes sexual impotence in men and sterility in women. Where the latter do conceive, the

* Details with regard to these interesting cases will be found in the large edition of this work.

pregnancy suffers in a considerable number of cases premature interruption, either spontaneously or through the necessary medical measures. The question whether it is desirable to prevent conception in the case of diabetic married women, or to bring about a miscarriage where conception has taken place, depends for its answer upon so many different circumstances that it is best to leave each case to the decision of the respective married couple, after consultation with the family doctor, who will in most cases recommend the calling-in of a second medical man. It is generally considered that the interruption of the pregnancy in diabetic pregnant women is the best course to be adopted. Of course, a great deal depends upon the value attached to the as yet unborn child, the birth of which may be of greater consequence than the life of the mother.

Influence on the Offspring.—Diabetes presents, finally, a double danger to the offspring. First, because the children of diabetic mothers, though they are often born alive, come into the world in a weak and pitiful condition; and, secondly, on account of the hereditary character of the disease. The older authors already knew that diabetes often occurs in several members of the same family or in several generations, and since then the number of cases observed has grown more and more. It may be said that a fifth of all diabetics are hereditarily predisposed to diabetes.

That diabetes resting on hereditary predisposition frequently passes over one generation, and appears in the third, is well known. But what has struck me is that in such cases the disease often makes its appearance at an early age, and even in very young children, and that it is then exceedingly rapid in its course. It is worth mentioning in this connection that diabetic mothers should on no account suckle their children.

There is not much to be said with regard to that form of diabetes which is known as diabetes insipidus. The only question worth considering is whether it is hereditary or not,

and what is known on the point tends to establish its non-hereditary character.

Gout.—The importance of genuine gout from the point of view of marriage and the married state lies almost exclusively in the circumstance that it rests upon heredity more than, perhaps, any other disease. It is reckoned that in England, the classical home of gout, heredity is demonstrable in almost 60 per cent. of the cases, and the percentage is greater if we take into account, not only parents and grandparents, but also the collateral lines of relationship. In Germany the proportion does not seem to be smaller—some maintain even that it is larger—but in France it appears that it is rather less. As in other hereditary diseases, so in gout—occasional omissions in intervening generations are observed.

There also seems to exist a sort of connection between diabetes and gout, as we often come across cases of diabetes in gouty families or in gouty individuals. It is worth mentioning that diabetes supervening on gout generally runs a favourable course. That gout is more frequently inherited from the father's side than from the mother's is probably due to the enormously greater frequency of the disease in males than in females.

The occurrence of gout is facilitated by an intemperate and over-indulgent mode of life, accompanied by an excess of food, and meat in particular; by abuse of alcoholic liquors, especially certain heavy kinds of wine and beer; by insufficient physical exercise and sexual transgressions. The latter factor explains, perhaps, why gout and syphilis so often go together.

Acute gout presents with regard to marriage nothing characteristic, nor can chronic gout be said to engage often the attention of a man who intends to marry, seeing how seldom it affects young persons. Should this, however, happen to be the case, the future wife will have to make up her mind, not only that she is not marrying a healthy and vigorous man who will be able to gratify fully her desires,

sexually and otherwise, but also that she will probably sooner or later be called upon to assist and nurse her husband, who, moreover, will hardly reach the allotted span of human life.

Apart from this, there is no necessity to oppose the marriage where there are no complications accompanying the gout. On the contrary, it is sometimes advisable to recommend it, especially where there is a probability that a salutary change in the mode of life of the individual concerned will thereby be occasioned. Young *bon-vivants* of a gouty stock should take this lesson to heart.

Where married persons suffering from gout have young children, it is advisable by suitable medical treatment and an early regulation of the mode of life to try and prevent the latter from developing the disease later in life.

Obesity.—Obesity presents two important features when regarded from the standpoint of marriage — namely, its hereditary character and the disturbances in the sexual function associated with it.

Regarding heredity, it must be observed that, although obesity very frequently rests on a family predisposition, it appears in a number of cases as an acquired disease. Racial peculiarities and climatic conditions play here an undeniable part. Thus, for instance, the women of many Eastern nations are very often obese, a condition which is not only not undesired, but actually looked upon with great favour.

Obesity is prevalent more among women and older men, and among the causes which tend to produce it are, in the first instance, an excessive consumption of food, and especially of substances which are supposed to form fat or reserve material; secondly, insufficient physical exercise, by which the consumption of fat is diminished; and, thirdly, a generous use of alcoholic drink, which is a reserve article for fat.

A further causative factor in the production of obesity is the insufficiency or absence of the sexual function. That the non-exercise of this function has an important effect upon the accumulation of fat in the body has been recognised from

times immemorial, and this has recently been confirmed by modern investigators. This partly explains the frequent sterility of obese women, and also probably why, in those cases where pregnancy ensues, the mammary glands act so deficiently.

Another cause of the sterility in obese women is the mechanical hindrance in the exercise of the sexual act, and the consequent prevention of conception through the formation of fat deposits in the external genital organs. The irritation of the neighbouring skin and mucous membrane caused by perspiration and friction may have a similar result.

The impotence frequently noticed in fat men probably rests on like causes—namely, upon an atrophy or other kind of degeneration in the testicles, a diminished sexual desire and erective faculty, and frequently, also, on a certain mechanical interference with the act of copulation, due to the mass of abdominal fat. With the improvement in the obesity, the sterility due to this cause soon disappears.

Myxœdema.—The myxœdema of adults, which alone interests us here, is a disease presenting, besides the skin symptoms and the deformities due to them, a certain amount of feebleness of mind which can go as far as absolute imbecility, and, in regard to the sexual functions, an inclination to miscarriages. The affection has in a few cases been traced to a hereditary or family predisposition, and more frequently insanity is found to have been present in the family or nearest blood relations.

Individuals suffering from myxœdema in an acute stage will hardly ever think of marriage; those who have recovered from it must bear in mind that the results of treatment are transitory only, and that the symptoms may return in a worse form at some time or other. They will therefore, in all likelihood, be advised by their doctors not to entertain the idea of matrimony.

The disease is not transmissible from husband to wife or *vice versâ*.

Acromegaly.—What has been said with regard to myxœdema applies equally well to this very rare malady. Its most serious symptoms from the point of view of married life are a general diminution in the physical and moral capability, and sterility or the extinction of the sexual desire.

There is no fear of the disease being conveyed from one of the married partners to the other; but hereditary transmission of an inclination to giant growth has been noticed frequently, not, however, in such numbers as to justify on this account a prevention of conception or the interruption of an eventual pregnancy.

Addison's Disease.—Addison's disease is an undeniable contra-indication against marriage. Where it is not yet fully developed, a postponement of the decision for a few years is advisable until a diagnosis can be made with certainty.

Nothing is known as to the contagiousness of the disease or as to its hereditary transmissibility.

Scrofula.—The importance of scrofula from the standpoint of marriage lies in the fact that it forms a predisposition to tuberculosis, and that in the case of individuals who have had scrofula there is always a fear that they will sooner or later be attacked by tuberculosis, especially of the lungs and larynx. And no less important is the other fact, that, if not scrofula itself, at least the predisposition to it, and therefore the predisposition to tuberculosis, is transmissible to the offspring, and consequently hereditary.

The marriage of an individual who has had or still has scrofula may therefore give ground for hesitation—firstly, because he or she may develop tuberculosis after marriage, an occurrence likely to prove more or less disastrous; and, secondly, on account of the possibility that the offspring of such marriage will equally suffer from scrofula and the predisposition to tuberculosis associated with it.

But although these scruples are theoretically justified, it is only very seldom that practical conclusions are possible, and, unfortunately, the medical profession is able to achieve the

least good in this direction just where it is mostly needed. It is well known that the most favourable conditions for the development and dissemination of scrofula are created, not only by inherited predisposition, but also, and even without such predisposition, by imperfect nourishment, by a deficiency of light, air, warmth, and cleanliness—in short, by that combination which we are in the habit of calling 'bad surrounding circumstances.'

It is under such circumstances that the poorer classes of the population live and suffer, and it is here where the medical man could often raise his voice against many a marriage, and prevent by words of advice and warning the procreation of scrofulous children. But these very same classes do not as a rule seek medical advice on such matters, and in the exceptional cases in which they do, they seldom accept it for reasons which it does not lie in the power of the doctor to remove.

Among the well-to-do classes, on the other hand, scrofula need not be regarded as an obstacle against marriage—at any rate, not as a serious obstacle. Because scrofula has, in the first instance, run its course by the time marriageable age has been reached; and, secondly, because the possible dangers arising from a previous or still existing scrofula may both in the individual affected and in his offspring be counteracted with a certain amount of success where there are the necessary means and will-power.

Where the circumstances are favourable, there is consequently no necessity to oppose the marriage of a scrofulous individual, even where there are still some traces of the disease left; nor need under similar circumstances any other precautions be taken with respect to the future offspring of scrofulous or ex-scrofulous parents than an avoidance of all injurious influences in the mode of life of the latter, and the best possible hygienic surroundings for the mother in the case of pregnancy. As regards the children, it is desirable that every endeavour be made that they receive judicious nursing and a bringing-up intended to make them strong and resistant.

IX.

DISEASES OF THE BLOOD IN RELATION TO MARRIAGE.

By PROFESSOR H. ROSIN (Berlin).

Anæmia.—Under this name are included a number of diseases which exhibit certain common anomalies in the constitution of the blood, and the outward signs of which are an abnormal paleness of the skin and mucous membranes, pain and a sense of fatigue in the organs of locomotion, disordered digestion, affections of the sexual organs, headache, etc.—disturbances which we designate as functional, and which are the result of insufficient nutrition on the part of the diseased blood.

Anæmia attacks the male sex far more rarely than the female, so that, in considering its bearing on marriage and the married state, it is principally the latter sex that we have to think of. Principally, but not entirely, for there are many men who suffer from anæmia, and if they are married they are hardly able to do justice to the duties connected with married life. But if this is true as regards men, the conditions are in women even more unfavourable, because anæmia often produces in them an abnormal state in the genital organs and in the menstruating function. Not infrequently there is a complication in the shape of absence of the conceptive faculty. On the other hand, pregnancy, if it does occur, causes in anæmic women an increase in the

symptoms, which are still further aggravated considerably by the labour and the hæmorrhage connected with it, and by the troubles of child-bed. It is well known that severe anæmia constitutes occasionally a dangerous complication of labour. We also know that in anæmic women involution after labour takes place imperfectly, that lactation runs an abnormal course, and that a number of diseases are apt to occur in consequence, which may be the cause of endless trouble and an unhappy married life.

Anæmia is also not without importance as regards the offspring. It is, fortunately, not always that the children of anæmic parents inherit the disease, but very many of them are born with abnormal debility, which can be successfully combated only by great and additional care.

Now, if we ask ourselves what influence has marriage on the production and the course of anæmia, we can at once say that marriage very frequently is the cause of origin of chronic anæmias. This is certainly rarely the case as regards the husband. The essential or primary form of anæmia hardly ever develops in married men, and secondary anæmias after hæmorrhages or diseases of all kinds cannot naturally be ascribed to the married state. Anæmic conditions may possibly be caused in a married man by an unhealthy mode of life. This applies particularly to the lower classes. In their case marriage means very often a material deterioration of their economic position, the beginning of poverty, a change to unfavourable conditions as regards housing accommodation and nutrition. Nor can it be said that this does not occasionally happen among people better situated. If there is not exactly a fear of starvation, marriage means at times with them also an abnormally increased demand on the earning capacity of the husband, a disproportionately greater amount of work or professional activity under excitements to which the body does not feel equal. In addition to this, there are the injurious influences of the modern custom of staying up late in overfilled and badly-ventilated rooms

instead of indulging in recuperating sleep, and the consumption of excessive quantities of food and alcohol.

But it is in the female sex that marriage is more likely to give rise to chronic anæmias of a serious nature. Apart from the injurious circumstances mentioned just now, there are special conditions which apply to married women. There are the hæmorrhages from, and the diseases of, the genital organs to which women are particularly subject during the course of their married life, far more so than during their virgin state. Severe loss of blood at the end of pregnancy, in labour and child-bed, diseases of the uterus and uterine membrane in association with these processes or as spontaneous occurrences which are complicated with severe hæmorrhages, form the cause of chronically anæmic conditions which have developed from originally acute anæmias.

Finally, women develop occasionally primary or essential anæmia when they are already married, without there being any assignable cause for it. It is for these reasons that anæmia is so very frequent in married women, and that marriage can in some respects be considered as the direct cause of anæmia.

But marriage may, on the other hand, exercise a beneficial influence upon anæmic conditions. Besides the advantages of a regulated married life, it appears that in women the gratification of the sexual desire has a decisive effect in removing existing anæmias and their causes. Especially, pregnancy is very often the most pronounced remedial agency. Though abnormal pregnancies and difficult labours are capable of producing anæmia, a normal pregnancy is often beneficial in its effect upon former diseases of the genital organs and former deficient blood-formation.

Should Anæmic Individuals marry?—In answering this question, it is of importance to ascertain first which form of anæmia is present. For in secondary anæmia the cause which has given rise to it may be of such a nature as to preclude the possibility of marriage altogether. There is

very often hidden behind an anæmia an insidious tuberculosis or other disease which has as yet produced no manifest symptoms. Where the cause lies in some less serious ailment, there is no need to refuse permission to the marriage, but the necessary treatment must be at once instituted so as to avert a possible aggravation of the trouble. It must be remembered, however, that profuse menstruation is not always amenable to successful treatment, and that the condition is frequently improved or cured by marriage alone.

Essential or constitutional anæmia proper, if not abnormally severe in character, is, similarly, no obstacle against marriage, seeing how often a cure is actually accomplished by marriage. It is also worth mentioning here that we often come across married people otherwise healthy, but anæmic, who are by no means so unable to fulfil their obligations as one would expect from their outward appearance. Delicate from childhood, and accustomed to great cautiousness in their entire mode of life, endowed with a good faculty to estimate their physical strength, they are more careful in the hygiene and dietetics of their married life than many others who, though in full vigour, are apt to forget themselves. They know instinctively how to utilize to the full the advantages of married life, and how to avoid excesses. It is only where the constitutions of husband and wife are too widely different from one another—where the one, for instance, is suffering from constitutional anæmia, and the other is in full possession of health and vigour, and by nature inclined to a less cautious mode of life—that disagreements are likely to arise in the course of the marriage, which will affect not only the moral happiness of both partners, but also subject the anæmic husband or wife to influences prejudicial to his or her health. This is a point which should receive the careful consideration of the parties to a proposed marriage.

The injurious effect of essential anæmia on the offspring, which has already been mentioned, will hardly receive much

practical consideration at the arrangement of marriages, important though the matter is. For, in the first place, a hereditary predisposition, especially if derived from one side only, does not, fortunately, always show itself; and, secondly, it would be impossible to prohibit a marriage on the strength of even a probable hereditary transmissibility. What can be done is to take all possible measures to counteract the injurious predisposition, and to bring up the children of the marriage in such a way as to make them strong and resistant. Unfortunately, this is a consummation which can hardly be expected in the case of the poorer classes, and Death will continue to claim his numerous victims from among the children of poor anæmic parents.

Special importance attaches to the possible influence of pregnancy on anæmic women. Where that influence has been an injurious one, or where labour has been directly responsible for a state of anæmia, it is necessary in extreme cases to practise sexual continence as long as the disease remains active, so as to avoid the danger of further loss of blood and exhaustion.

Chlorosis.—Let us now consider that special form of essential anæmia which goes by the well-known name of chlorosis. Its close connection with the other forms of anæmia is evidenced by the similarity of the symptoms, and by the circumstance that it is benefited by the same therapeutic measures. Nevertheless chlorosis may be separated from the other anæmias as a special disease peculiar to young women, the more so as most authors agree in ascribing to it a special relation to the genital organs. It is questionable whether it ever appears at all in the male sex. At all events, cases described as chlorosis appear in male adults only at the age of puberty—that is, at a time of life when marriage is with them as yet altogether out of the question. For this reason we have to consider the female sex exclusively when dealing with the influence of chlorosis on marriage and *vice versâ*. The disease is often present in young women at

an age which precedes immediately the entrance into the married state.

Though this is not the place to go into a detailed description of the symptoms of chlorosis, which, as already said, are not dissimilar to those of anæmias in general, it is advisable, in view of our present subject, to touch briefly upon the relations which the disease has to the sexual apparatus. That such relations do exist is highly probable, but objectively they are not by any means very pronounced. There is no doubt that some of the anomalies which the genital organs of chlorotic women exhibit are the result of nothing else but deficient nourishment on the part of the diseased blood. Among these are included, as in other anæmias, disturbances of menstruation, catarrhal affections of the mucous membranes, and pain in the respective organs. More significant than hese disturbances in the genital organs, for the assumption that there is a connection between chlorosis and the sexual function, are certain subjective sensations. The principal of these is a remarkable alteration in the wishes and inclinations as well as in the psychical attitude which chlorotic women manifest occasionally, almost as markedly as women in a state of pregnancy. Apathy, general depression, or a striking alteration in the temperament, often become quite marked features, altogether independent of the bodily condition. In addition there is that peculiar abnormal desire for certain articles of food which chlorotic women share with those who are pregnant. Frequently there is nausea in the morning, especially at the menstruation periods. Finally, the commencement of the disease is, as a rule, accompanied by a diminution in the sensual inclinations. Although there are exceptions in an opposite sense, the psychical depression extends, as a rule, to the sexual sphere.

Should Chlorotic Women marry?—Since chlorosis generally begins about the time of sexual maturity, and lasts for many years, resisting all treatment, chlorotic patients or

their parents may often find themselves confronted with the question whether marriage is in their case permissible or desirable. The medical man also has often occasion to ask himself whether girls suffering from chlorosis may marry without injury to their own health, without detriment to the eventual offspring, and without disadvantage to their married life. We may, perhaps, answer this question in the following manner: Where the female concerned is still very young, every possible attempt must be made to cure the disease before marriage is entered into. Experience shows that the majority of cases of chlorosis are cured before the age of twenty, especially if the proper treatment is instituted. It is not, however, always possible to wait till a cure has been accomplished; a somewhat advanced age, the prospect of a happy marriage, an existing engagement, and other circumstances, render sometimes a quick decision necessary. We must therefore rely to a great extent upon what we know from experience—namely, that very often, perhaps as a rule, chlorosis disappears completely in young married women soon after their marriage, and especially with the beginning of pregnancy. The above-mentioned relations of chlorosis to the genital function receive in this way further confirmation through the favourable results achieved by a regulated married life. The doctor may, therefore, not only give his consent to the marriage of a chlorotic young woman where suitable treatment has been either impossible or unsuccessful, but he may under certain circumstances actually recommend it.

It must not, however, be forgotten that there are now and then cases of chlorosis which are not benefited by marriage, though it must remain an open question whether they are really cases of chlorosis, and whether there are any chlorotic married women at all. The probability is that they ought to be reckoned among the cases of constitutional anæmia.

Anæmia and chlorosis are the principal diseases of the blood which come into consideration in regard to the question

of marriage. The others are so rare, or otherwise of little interest from our present point of view, that a few words will suffice in dealing with them.

Hæmoglobinæmia or Hæmoglobinuria, especially that form which appears mostly after a cold, in contrast to the symptomatic form produced by toxic agencies, generally runs a mild course, and disappears without leaving any injurious effects. The disease has no significance as regards marriage, so long as there are no complications; it is therefore not necessary to prohibit the marriage of those suffering from it.

The Hæmorrhagic Diathesis.—To a certain extent the same may be said with regard to the group of diseases which are included under the name of hæmorrhagic diathesis, affections manifested by hæmorrhages through the skin and mucous membranes without a diminution in the coagulability of the blood.

These hæmorrhagic diatheses may, however, acquire special significance in the married state during pregnancy, and in labour especially, since most dangerous hæmorrhages are apt to occur in the latter. Indeed, where the hæmorrhage from the skin and mucous membranes is severe, and the consequent anæmia pronounced and progressive, the artificial interruption of the pregnancy is worth taking into consideration.

Hæmophilia.—This disease, of which little is as yet known, and the main symptom of which is a tendency to profuse hæmorrhage, is of importance in connection with the subject of marriage, as it is known to be a hereditary and congenital affection. It has also a special significance in the case of married women, as the hæmorrhages to which they are subject in labour and during child-bed may become so alarming as to constitute the greatest danger to life. As a matter of fact, death from hæmorrhage in lying-in women who are hæmophilics occurs exceedingly often.

Fortunately, we know from experience that women are rarely attacked by hæmophilia, especially in some countries

where the disease is altogether not very frequent. The following list gives an idea of its geographical distribution, from which it can be seen that Germany presents the greatest number of hæmophilics, both relatively and absolutely :

	Hæmophilic Families.	Number of Hæmophilics.	Males.	Females.
Germany	93	258	236	22
England	46	141	134	7
France	20	80	75	5
North America ...	15	61	60	1
Russia	7	11	7	4
Switzerland ...	5	48	48	–
Sweden and Norway ...	3	9	6	3
Holland	2	9	7	2
Belgium	1	4	4	–
Denmark	1	3	2	1
East Indies	1	6	5	1
	194	630	584	46

As far as the hereditary character of the disease is concerned, a striking circumstance has been observed—namely, that, although women are rarely sufferers themselves, they act as 'conductors' towards their male offspring; in other words, that females who come from hæmophilic families generally procreate hæmophilic sons, although they themselves have never suffered from the disease, whereas men who come from hæmophilic stock procreate with healthy women of a non-hæmophilic stock healthy children, even if they themselves are hæmophilics. The conclusion to be drawn from this observation is that female members of hæmophilic families ought not to marry under any circumstances, and that male members of hæmophilic families may marry without running any risk, unless they are hæmophilics themselves, when the decision depends upon the question whether in that particular family male hæmophilics have also produced hæmophilics or not.

It is worth mentioning that hæmophilia diminishes as age advances, and that those who attain old age lose the disease almost entirely.

In conclusion, there remains a word to be said about pernicious anæmia, leukæmia, and the other serious diseases of the blood which are almost without exception fatal. Seeing that patients suffering from one of these affections are hardly likely to entertain the idea of marriage, we are justified in merely mentioning that when they show themselves in married women they are apt to have most injurious effects upon eventual pregnancies and labours, and, *vice versâ*, that these processes have a very prejudicial influence upon the course of the disease.

X.

DISEASES OF THE VASCULAR SYSTEM IN RELATION TO MARRIAGE.

By PROFESSOR E. V. LEYDEN (Berlin) AND W. WOLFF, M.D. (Berlin).

I. Diseases of the Heart.

It is an incontrovertible fact that there are families in which diseases of the heart occur particularly often. Nothing is therefore more likely from a superficial view than the assumption that diseases of the heart must be regarded as hereditary. And, as a matter of fact, this heredity is looked upon as a reality by both the educated and uneducated public. Medical men, however, who limit strictly the term 'heredity,' arrive at quite a different conclusion. In their opinion most affections of the heart are not as such hereditary, but acquired. Their frequent occurrence in certain families can be accounted for by other reasons. Not the diseases themselves are inherited, but the predisposition which may lead to diseases of the heart. Hereditary in a true sense are only a small number of congenital affections of the heart—*i.e.*, those the origin of which we suppose to be due to congenital malformations. These do not, however, interest us here from a practical point of view, as no more than an insignificant proportion of individuals with congenital heart disease attain marriageable age.

But greater importance attaches to the *acquired* diseases of the heart; and the question which confronts us at the very

beginning is : How does marriage affect patients suffering from heart disease?

We must recollect that during pregnancy, and especially in the later months, the demands made upon the activity of the heart are very considerable. These demands are at the labour-stage increased up to the point of overexertion; after the labour is over, the action of the heart falls to such an extent that even under normal circumstances the greatest vigilance is required. What all this may mean to a diseased heart need not, therefore, be stated in many words.

On the part of the lungs there also arise disturbances in the course of pregnancy which give to the heart a greater amount of work to do. The same thing may be said with regard to the blood and the kidneys. Dropsy frequently appears, and causes an aggravation of the dyspnœa, which is noticeable even under ordinary circumstances.

So if we take a general view of all these influences and perturbations which are, as a rule, associated with pregnancy, we find that they are bound to have some effect even upon a healthy heart, and that where the heart is diseased this effect must be infinitely more serious. It is self-evident that the more severe the heart disease is, the sooner consequences of a dangerous nature will show themselves.

Although these dangers begin with the commencement of pregnancy, they appear at first imperceptibly, and attain, as a rule, a considerable degree in the second half of the term. But there are cases now and then in which decided unfavourable signs make their appearance in pregnant women with heart disease right from the very first months. These disturbances may disappear or get corrected; as a rule, however, they grow with inconsiderable fluctuations from day to day, and bring the patients into a most distressing condition, which makes the greatest demands upon their physical and moral ability to endure suffering. The shortness of breath and the dropsy vary; the increasing voluminousness renders the patients helpless, unable to do any work, and

almost unable to move about. The appetite is disturbed, and attacks of dyspnœa, particularly during the night, make sleep impossible.

Nevertheless, experience teaches that all these complaints are usually endured until the end of the pregnancy. The termination of the distressing period is anxiously awaited both by doctor and patient, and the commencement of the labour-pains is joyfully welcomed. The labour is cheerfully gone through, since it brings release from untold anguish; but with the end of the labour process, with the liberation from suffering, with the desired calm, there enters also a condition of weakness, a collapse which harbours new dangers, and which not infrequently leads to a development of serious complications. If this immediate danger is surmounted, there still remains a perilous state of cardiac debility, there is still a possibility of paralysis of the heart supervening; and it is only by very careful nursing, and by slow degrees, that this painful condition can be overcome. Often enough the heart continues weak for a long time, and its action is disturbed for a lengthy period—sometimes, unfortunately, for good.

That this condition may be compared to that of the crisis in acute diseases is shown by the circumstance that at the height of pregnancy the predisposition to infectious diseases is slight, whilst during child-bed such infectious diseases are very apt to occur and certain complications likely to make their appearance.

Having now pointed out the dangers which confront women suffering from affections of the heart during pregnancy and child-bed, we must turn our attention next to the important practical question: What are the ways and means to be adopted in order to avert or diminish these dangers? That the necessary medical treatment must be instituted as soon as possible goes without saying; here we shall only consider the point whether the normal end of the pregnancy should be awaited, or whether, and under what special circumstances,

artificial premature labour may, or should, be brought about.

This is a question which has been very much debated in medical circles; and whilst most gynæcologists recognise the necessity of the step in rare cases only, members of other branches of the medical profession incline more the other way. Those who are in the habit of seeing many cases of heart disease know that nearly 40 per cent. of the patients die in consequence of pregnancy and child-birth, and they are influenced by this figure in arriving at the opinion that artificial premature labour is justified in every case where the heart disease is serious and likely to become dangerous. It is, of course, difficult to lay down general rules, and every conscientious and observant practitioner must decide each case to the best of his ability.

As regards the question whether the marriage of women affected with heart disease should be permitted or not, it is as well to remember that a prohibition would in most cases be futile, since no attention would be paid to it if this involves sorrow and disappointment. Besides, a prohibition of marriage might cause more mischief than good, as to the real danger occasioned by the disease there would be an aggravating element added in the form of fear and worry, especially if the patient was not hitherto aware of her serious condition. It is, therefore, in the severest cases only that such a prohibition would be justified.

Of a more practical character is the advice which should be given to women with heart disease, or to their husbands, to avoid conception and pregnancy for as long as possible, or even altogether. This recommendation is not likely to meet with considerable opposition, if at all, particularly where there is already one child born of the marriage.

It is quite evident that in those cases of heart disease which may be cured by appropriate treatment a postponement of the marriage or abstention from sexual intercourse is indicated for the time while the disease lasts. In this connection

a word on the effect of nicotine and alcohol on the heart is not out of place. Tobacco is often responsible for a functional disturbance in the action of the heart, which can be rectified by the discontinuance of smoking. As far as alcohol is concerned, a great deal depends on whether the injury has progressed far or not. In mild cases of alcoholic heart trouble the arrest of the habit is sufficient to restore the organ to a normal condition; in others, the mischief may have become permanent and serious.

In the case of married men who are affected with heart disease, it is necessary that they should be warned against an excessive fulfilment of their marital obligations if complete abstinence is not altogether necessary.

Women suffering from heart disease should not, as a rule, suckle their children, though exceptions are permissible at the discretion of the doctor in attendance.

II. Diseases of the Arteries.

Arterio-sclerosis plays an important part in connection with the subject of marriage, on account of the heredity which is a principal factor in its causation, but it can hardly be said that this constitutes a reason why persons with arterio-sclerosis should be refused permission to marry.

Arterio-sclerosis presents, however, important features from another aspect of married life. It is a change which is seen principally in older individuals, and cannot even be regarded as something abnormal unless young persons suffer from it. Now it is well known that old-age marriages are very often injurious, and the cause of this lies, as a rule, in the effect of sexual intercourse on the diseased arteries. It is by no means a rare occurrence for elderly men who had, up to their marriage, been considered strong and healthy to die soon after their entrance into these new and unaccustomed conditions. Even sudden death during the exercise of the sexual act is, under such circumstances, a fairly frequent event.

This being so, the inevitable conclusion to be drawn is that extreme caution must be displayed by elderly men who are matrimonially inclined, and that a careful examination of the arterial system should be made by their medical adviser before a decision is taken.

Angina pectoris being a sclerosis of the arteries of the heart, the above remarks apply with greater force to this very serious disease.

In women with arterio-sclerosis the affection undergoes during pregnancy an aggravation. It also has a very prejudicial effect on the general condition of the pregnant woman, and is a very dangerous complication during the labour act. Under such circumstances the induction of premature labour by the doctor in attendance is imperative.

From what has been said it is clear that the same caution is indicated in the presence of an aneurism. Marriage must be dissuaded from, moderation in sexual intercourse enjoined, or the avoidance of pregnancy recommended, as the case may be.

III. Diseases of the Veins.

The disease of the veins which is most frequently met with, and which has some bearing on the married state, is their dilatation, and especially that of the veins of the lower extremity. The dangers of these *varicose veins* lies in the circumstance that they are apt to get worse during pregnancy, when they may give rise to fatal hæmorrhages, ulcerations, or inflammations. The greatest watchfulness is therefore indicated. In addition to the necessary treatment and appliances, such as bandages, etc., it is advisable to have the foot end of the bed a little higher than the head end, and that the child-bed period should extend over a fortnight at least. This applies particularly to women of the working class.

Next in frequency is the formation of *hæmorrhoids*. Here also pregnancy acts injuriously; but, as a rule, the hæmorrhoids get less at its termination. It is only in severe cases that an operation becomes necessary.

In men there is often seen a dilatation of the veins in the testicles, the so-called *varicocele*. It is not generally admitted that it may give rise to impotence, but if extreme it may interfere with the sexual act, and an operation is then advisable.

IV. Diseases of the Lymphatic System.

There is only one disease of the lymphatic system which interests us here, the so-called 'white leg,' which is often seen to arise during child-bed. Opinion varies as to the cause of this complaint. Some think it is due to a congestion of lymph, and others to the formation of clots in the veins.

There is a rare and serious disease of the lymphatic system, known under the name of 'Hodgkin's disease,' which forms sometimes a complication with pregnancy. In our opinion such a complication justifies a medical man in at once interrupting the pregnancy by artificial means.

XI.

DISEASES OF THE RESPIRATORY ORGANS IN RELATION TO MARRIAGE.

By S. Kaminer, M.D. (Berlin).

I. Pulmonary and Laryngeal Tuberculosis.

Among the chronic diseases of the respiratory organs, tuberculosis of the lungs and of the larynx occupies a very prominent position from the standpoint of married life, because it is, owing to its infectious character, a source of danger to the person living in matrimony with the sufferer, and also because it is frequently inherited by the offspring.

Let us consider first what effect marriage has, or may have, on the sufferer himself or herself. Beginning with the husband, it is well known that tuberculosis is very frequently accompanied by an almost characteristic morbid increase in the sexual desire. Connubial intercourse is therefore likely to have a more controlling and regulating influence than non-connubial indulgence with its accompanying unhealthy mode of life. On the other hand, there are undoubted social disadvantages. In the proletarian particularly marriage very often means a deterioration of his economic position, and this must be even more pronounced in one afflicted with tuberculosis. It is a fact that tuberculous working men generally bring into the world more children than they can bring up in anything like favourable circumstances. The consequence is that they are not in a position to permit themselves that superior nourishment and comfort which their condition demands, and

the result is that they get worse. To a certain extent this is also true as regards the better classes, and in their case an unhealthy and irregular mode of life, such as people of means can afford, supplies an additional aggravating cause. We must therefore conclude that, on the whole, marriage is to a tuberculous husband hygienically beneficial if he is not poor, or if he is satisfied with a quiet and well-regulated life.

As regards the wife, it is curious that up to the middle of the last century the opinion was prevalent that tuberculosis is favourably influenced by pregnancy. This view is no longer held. On the contrary, it is generally believed now that pregnancy and labour exercise an injurious effect upon the course of tuberculosis, and that they frequently are the cause of its origin or relapse. Lactation, too, is regarded as an aggravating element in the course of a tuberculous illness. Of course, a great deal depends on the stage of the disease. The more advanced the latter, the worse the effect exercised upon it by pregnancy or child-birth.

Coming now to the transmission of tuberculosis from husband to wife, or *vice versâ*, importance must be attached here also to the stage of the illness, since it is more infectious at certain phases than at others. As to how great the risk of infection is, there are no definite reliable statistics on the point. If more wives get infected from their husbands than the other way about, this may be due to the fact that women generally stay more at home that men, and are thus for a longer time exposed to the influence of the sputum expectorated by their husbands, which contains the agent of infection—namely, the tubercle bacilli. As to whether the transmission of tuberculosis can take place through the medium of the seminal fluid or the sexual act, the probability is against it as long as the genital organs are healthy ; if they are tuberculously affected, experience suggests that such a transmission is quite possible.

The principal method of infection is, as already indicated, that through the sputum, but it must not be forgotten that

direct infection—as, for instance, through kissing—is by no means impossible. The same may be said with regard to the common use of domestic articles which have become contaminated through contact with the tuberculous sputum.

Fortunately the tubercle bacillus is not the only factor in the causation of tuberculosis, or else the reciprocal infection of husband and wife would be not only frequent, but universal. There is a certain natural immunity provided by Nature which renders the individuals possessing it safe against infection, but this immunity is often lost through various circumstances, such as a sudden illness, general weakness, or unfavourable social conditions.

The Offspring.—The fact that tuberculosis occurs very often successively in different generations of the same family is accountable for the former conception of the disease as a constitutional anomaly. Since the discovery of the bacillus as the cause of the disease, a change of opinion has taken place; but although infection does play a part here, as it does in the transmission from husband to wife, and *vice versâ*, it does not explain every case—for instance, those individuals whose parents have been dead for years or decades. As a general explanation, the theory has been evolved that it is certain bodily peculiarities which favour the development of tuberculosis, and not the tubercle bacillus which passes into the offspring—in other words, that what is inherited is a 'predisposition' to tuberculosis. What that predisposition is we cannot exactly tell; sometimes it applies to one particular organ, and sometimes to the whole organism; sometimes it lasts during the whole life of an individual, and sometimes during certain stages of it only; sometimes it is greater, and at other times smaller.

But though tuberculosis is very frequent among the descendants of the tuberculous, it is wrong to look upon every child of a tuberculous individual as a 'tuberculous unit,' intended to fall a prey to the disease. Experience teaches us daily that such descendants may remain free from

tuberculosis as long as they live, and, on the other hand, that some members of such families escape the disease, while others are overtaken by the same fate as their procreators. The inherited disposition is a variable quantity, since it may be influenced during life by therapeutic measures; and we may, therefore, conclude that not every individual who has inherited it acquires the disease as a matter of course, because the exciting energy of the bacillus is not always great enough, and the resistibility of the body not always small enough, to facilitate the outbreak of the disease. The descendant is not bound to become tuberculous even if both his parents were afflicted with tuberculosis.

Permission to Marry.—As long as it is not, therefore, possible to tell with certainty whether the disease, which was present in the parents, will also make its appearance in the children, it is also impossible to lay down laws with regard to consenting to the marriage of such individuals as are predisposed to tuberculosis. Material or social considerations, and occasionally, perhaps, dynastic motives, must in each single case influence the decision to be arrived at, one way or the other. In giving or refusing to tuberculous persons the permission to marry, it is necessary to follow certain fixed principles with regard to the different classes of the disease, and also with regard to individual cases. It is, for instance, necessary, as a rule, to oppose the marriage of tuberculously affected people with far more energy than that of persons who are only hereditarily predisposed to tuberculosis; but circumstances may occasionally arise where the advantages of marriage outweigh the disadvantages, where there is either no danger at all involved by marriage, or where, if present, such danger may be materially diminished by suitable prophylactic or therapeutic measures.

A great deal also depends on the stage of the disease. In fresh cases the permission will probably have to be withheld every time; where the expectoration is profuse, and it contains bacilli, marriage would be highly dangerous to the other

partner, and is, therefore, to be condemned. In cured cases of tuberculosis, the intending husband or wife should wait at least three years from the time of recovery, though in this respect nothing can be said with certainty; and no individual who has had tuberculosis should leave his or her future partner in the dark with regard to his or her former illness. Altogether, the question is one of the most serious importance, and fraught with the gravest responsibility on the part of the medical man consulted.

In the case of married people who are tuberculous, it is absolutely necessary that they—or their partners—should be informed by the doctor how to regulate their sexual life. They must be told to curb their desire, which, as already mentioned, is in tuberculous husbands very often exaggerated, and all factors which tend to increase that desire must be carefully avoided. Where the genital organs are tuberculously affected, the necessary advice must be given. An important prophylactic measure is the occupation by husband and wife of separate bedrooms, where this is possible, or of separate beds, as distant from one another as the size of the room will permit. Every attention must also be paid to the other means calculated to prevent infection.

As regards the question whether tuberculous women who have become pregnant, or pregnant women who have become tuberculous, should be relieved of their burden by artificial means and before the expiration of the normal term, it is not possible to give a general answer. Every case must be decided individually on its merits. What must always be remembered is that the possible help thus rendered to the mother is dearly bought—bought at the cost of a future human life; and the sacrifice should therefore, at least, be compensated for by a substantial gain to the mother.

In the last months of pregnancy artificial interference is very seldom justified.

The much better plan is to recommend to tuberculous married women or to their husbands that they avoid con-

ception and pregnancy, not so much on account of their offspring, but with a view to preventing the dangers which threaten the mother.

Tuberculous mothers should never suckle their children.

II. Bronchial Asthma.

Bronchial asthma is, next to tuberculosis, a chronic disease of the respiratory organs which deserves the greatest amount of consideration from the point of view of those who are about to contract marriage. Not, of course, to the same extent as tuberculosis, since all those factors which are of such enormous importance to the whole of mankind where the question of marriage arises in connection with tuberculous persons are absent in asthma, a disease which is, by the way, relatively very prevalent. For the bronchial asthma of the husband or wife causes no danger to the other partner, but, at most, a certain amount of inconvenience and discomfort. Nor is the opinion of some authors, that the disease is often inherited, sufficiently proved by statistics, or generally shared. The fact that asthma is occasionally present, both in the parents and in one of their children, does not justify its inclusion among the genuine hereditary diseases.

Although asthma is, on the whole, an incurable affection, it extends over such long periods of time, and the duration of life in those suffering from it is so little influenced by the illness, that it can hardly be regarded, unless complicated with other troubles, as an impediment to marriage.

On the contrary, several cases have been observed and reported where marriage has, in young girls suffering from asthma, been of decided benefit. The phenomenon is probably associated with the exercise of the sexual function, and we must assume that by the gratification of the desire there is caused a reduction in the general irritability of the nervous system, and, consequently, also in that of the nerves connected with the asthmatic attacks.

Asthma does not appear to present any peculiarities or complications in association with pregnancy. There is consequently very seldom an occasion to bring about premature labour in asthmatic women. As regards lactation, it is perhaps advisable, as a rule, to recommend women suffering from asthma not to suckle their children, as the secretion of milk must exercise a debilitating effect upon their organism.

With regard to the other chronic diseases of the respiratory organs, there is very little to say in connection with marriage and the married state. Some of them, such as cancer, etc., are so serious, and their prognosis is so unfavourable, that the question of marriage can hardly arise in connection with them; others are so rare that the result is practically the same. Those which are more prevalent—for instance, chronic bronchitis—have so little effect upon the working ability and life-duration of the patients that a prohibition of marriage is hardly ever justified.

Only with regard to emphysema the question of marriageableness may possibly arise, and the answer is not likely to be often in the negative, unless the consequential results of the disease have assumed serious proportions.

In women emphysema is comparatively rare, but where present, it is likely to be aggravated by a supervening pregnancy. As to lactation, there is no apparent necessity to prohibit it.

XII.

DISEASES OF THE ORGANS OF DIGESTION IN RELATION TO MARRIAGE.

By PROFESSOR C. A. EWALD (Berlin).

In considering the diseases of the organs of digestion in relation to marriage, we have to preface our remarks with the observation that the gain which marriage brings in its course is greater in the husband than in the wife, and that the latter has more than her share of trouble and ill-health. In some respects, however, that gain is alike in both partners, and this refers especially to the influence exercised by a well-regulated life on the digestive organs. *Vice versâ*, psychical factors play a great part in creating digestive disturbances in the husband no less than in the wife.

Nervous Complaints.—The struggle for existence and the maintenance of the children, illness in the family, and other anxious cares, react in many individuals on the digestive apparatus, and produce the most various disturbances in the same. This is ancient wisdom, and Shakespeare knew what he was saying when he made Henry VIII. pronounce sentence of death on Cardinal Wolsey by means of the words: 'Read over this, and after this; and then to breakfast, with what appetite you have.' These disturbances may affect all parts of the digestive tract from the mouth downwards, and manifest themselves by most variable so-called nervous complaints. There are people who, when they are troubled or excited, cannot 'swallow a bite,' not because the mechanism of deglutition is out of order, but because there is not

sufficient saliva secreted to make the food slippery enough to be gulped down into the gullet, the result being that 'it sticks in the throat.' Tendency to flatulence, constipation, or an irregular action of the bowels, accompanied by diarrhœa-like evacuations, are the most prominent symptoms in other cases of depression in the gastro-intestinal organs.

In other directions, too, married life is capable of producing all kinds of injury to the digestive functions. I allude to the nervous disorders, due to excessive sexual intercourse or to an abnormal performance of the sexual act. Both are more frequent than one would imagine, and we hear occasionally most incredible statements in this respect. There is no necessity to go here into details, but I should like to point out that the interrupted mode of intercourse to which reference has been made in other articles of this work is a pre-eminent cause of nervous disturbances in the digestive organs. This is due probably more to moral than physical reasons, but also, perhaps, to the fact that newly-married people do not, when exercising preventive intercourse, practise the natural abstinence imposed by pregnancy and child-bed, thereby creating a constant irritability of the nervous system. One might retort that in sterile marriages there is also no 'close time,' and yet they do not show any particular predominance of nervous and especially nervous-dyspeptic conditions. But the fact remains that cases are seen by the hundred in which the beginning and progress of nervous gastro-intestinal troubles can be traced to no other source than preventive intercourse. Perhaps sterile marriages are free from these disturbances, because a certain sexual frigidity often appears very early in their course, which excludes the possibility of sexual overindulgence. That these digestive disorders are seen oftener in men than in women is only natural, since the latter do not, as a rule, experience such severe perturbations of the nervous system from the exercise of the sexual act as the former.

I. Diseases of the Stomach and Intestines.

There is nothing known of a direct infection or transmission of an organic disease of the digestive organs from husband to wife, or *vice versâ*. This might possibly happen in cancerous and tuberculous affections. Cases have repeatedly been observed of husband and wife who have been attacked in quick succession by cancer of the stomach or of the intestines; but whether we may in such cases admit a direct or indirect infection it is at present impossible to say.

As regards the influence of marriage on the digestive functions of the married partners, it has already been indicated that in the husband marriage is, as a rule, beneficial in that direction. The same thing cannot be said with respect to the wife. In her case the natural results of marriage, especially pregnancy and child-bed, are the source of many troubles, and but rarely that of benefit to health.

That deleterious effect on the digestive organs is not always alike. It is sometimes mild and sometimes severe, sometimes temporary and sometimes permanent. Take, for instance, the mouth. It is well known that toothache is a very frequent accompaniment of pregnancy, and that sometimes the teeth decay and fall out. Hence the saying that every child costs its mother at least one tooth. In addition to this, there are often inflammatory processes of the gums, with redness, swelling, and a tendency to hæmorrhages. Whether this is due to reflex action or other causes, we cannot say.

Another unpleasant and sometimes distressful accompaniment of pregnancy is ptyalism, or an excessive secretion of saliva, which has even been known to cause death from exhaustion, and which frequently necessitates the artificial interruption of the pregnancy, no other treatment being of any use.

Vomiting in Pregnancy.—We now come to one of the most frequent, and at times most serious, complications of pregnancy—namely, vomiting. This condition occurs in

about 50 per cent. of all cases. Women pregnant for the first time and women in the first three months of their pregnancy are most frequently affected. About half the number vomit in the morning only. The process always takes place easily and without any special warning ; the food previously taken is evacuated, and a good appetite is soon afterwards re-established. In other cases, however, vomiting occurs also on an empty stomach. Pain is felt in the gastric region, there is a dislike of food of all kinds, unquenchable thirst, and a dry tongue. In such cases there may result extreme emaciation, an anæmic condition, and severe psychical apathy. The extremities are cold, the pulse small, the face appears haggard, and the whole condition makes a most alarming impression ; the more so, as treatment seems in many cases to be altogether useless.*

The necessity arises, therefore, very often to have recourse to artificial premature labour or abortion, when there is in numerous cases an immediate improvement or absolute cessation of the vomiting. Whether and when this measure is to be adopted depends on each case separately, as even in some very bad cases the vomiting stops spontaneously at the natural end of the pregnancy, and the mother makes an excellent recovery. It is often astonishing to see with what rapidity extremely emaciated women regain their normal health. And, strange to say, the child does not suffer in the least by the great weakness of the mother. Most extreme exhaustion, and even the death, of the pregnant woman is more likely to be the result than a spontaneous miscarriage.

Vomiting of blood has also been observed during pregnancy, though only very rarely. The cause lies probably oftenest in so-called erosions or ulcerations of the gastric mucous membrane. That severe vomiting may give rise to such injuries

* Those interested in the subject from a wider point of view will find additional information and interesting details in the large edition of this work.—Translator.

is by no means impossible, considering the intense violence exerted upon the gastric walls. These ulcers perforate occasionally into the peritoneum with fatal results.

Dyspeptic Phenomena.—The abnormal desires of pregnant women, which manifest themselves by a longing for sour or spicy articles of food, by a ravenous appetite for chalk and similar things, are too well known to require more than passing notice; nor is it necessary to dwell at any great length on the simple dyspeptic disturbances, want of appetite amounting to a disgust at the sight of food, eructations, heart-burning, etc. In so far as they are not caused by direct local injuries, we might classify these disorders among the reflex neuroses. It is certain, however, that pregnancy conduces also, by purely mechanical reasons, to disturbances in the gastric functions. Sometimes we come across pregnancies which are seriously endangered by the presence of acute gastro-intestinal catarrhs, and which lead to severe vomiting and diarrhœa. The loss of strength is so great that a suspicion of tuberculosis of the intestines or some other malignant disease arises, especially if convulsions accompany the condition.

Chronic catarrhs of the intestines also occur in connection with pregnancy, which are capable of arresting the latter prematurely. The same thing may be said of such affections as cancer of the rectum, which may by its extent encroach on neighbouring parts and become also a severe obstacle in labour. Even such a thing as spontaneous laceration of the bowels, strange as it may seem, has been observed several times during labour.

It is also worth mentioning that gastric and intestinal disorders may occur not only during pregnancy and labour, but also during the lying-in period.

Constipation.—This is a frequent source of trouble during pregnancy, which attains sometimes most extreme degrees, and it is, moreover, so persistent that the poor women have generally tried the whole pharmacopœia of

internal and external remedies by the time they bring their complaint under the notice of a doctor.

For these constipations the pressure of the growing uterus upon the bowel has been made responsible, but without sufficient reason, because the constipation begins in many women at the commencement of the pregnancy, when this pressure is not yet present, and it persists or appears even afresh after the confinement, when the pressure has already gone. The probability is that the cause lies in a want of tonicity on the part of the intestinal muscular walls, which is partly nervous in origin and partly occasioned by the complex of several injurious influences.

In this connection we may mention hæmorrhoids—a frequent and very disagreeable incident in the course of pregnancy and labour, and one which may give rise sometimes to alarming consequences.

Among the rarer complications of pregnancy on the part of the intestines, it may be said that hernia is occasionally produced or aggravated; chronic appendicitis is apt to undergo very serious relapses, and acute diseases, such as enteric fever, are often the cause of miscarriages.

On the question of surgical operations on the abdomen during pregnancy, opinion is divided. Some favour an expectant attitude for as long as possible, others prefer immediate active steps, especially in the early months. In my opinion, an operation is indicated as soon as dangerous symptoms have appeared or are likely to appear.

II. Diseases of the Liver.

Jaundice is a fairly frequent accompaniment of pregnancy in its early stages, and recurs in some women regularly with every subsequent pregnancy. It generally runs a favourable course, and must not be confounded with *acute yellow atrophy of the liver*—a form of jaundice which appears, as a rule, in the second half of pregnancy, and which is severe,

acute, and of a fatal character. In all likelihood this is an infectious disease, though we are not acquainted with the infecting agency. Fortunately, it is very rare.

Gall-stones have always been associated with pregnancy in the sense that the latter is a predisposing factor in their causation. Statistics show that, in a considerable number of cases, the first symptoms of the illness appeared during, or immediately after, child-bed. The reason lies probably in the fact that the influences of pregnancy on the circulation in the liver favour the formation of gall-stones. The same result may also be due to the displacements which the liver suffers during pregnancy.

Cancer of the Liver undergoes during pregnancy rapid aggravation, thereby accelerating the fatal issue.*

Having now enumerated most of the diseases of the organs of digestion which occur in connection with pregnancy, it is as well to add that, though very many women have to put up with them in the course of their lives, the vast majority do not fare so badly. Many anæmic, chlorotic, and nervous young girls, who were before their marriage subject to all kinds of digestive troubles, develop, during married life, into strong and healthy women, with an excellent appetite, and perfectly normal functions of all the organs concerned. In fact, even severe constitutional diseases may disappear, or the hereditary predisposition to them be annulled, provided the digestive organs exercise their functions properly. There is in this connection a most interesting and, perhaps, not sufficiently known example to be found in medical literature. Considering the importance of the subject, I reproduce the case in the author's own words :

'The wife of a medical friend was descended from a tuber-

* Further details on the diseases discussed in this article, and on others of rarer occurrence, will be found in the large edition of this work. They cannot be said to be of interest to the general reader.

culously-predisposed family. Her mother had died when between thirty and forty years old from pulmonary tuberculosis, and likewise her oldest sister, after a short, sterile married life. She herself was nineteen years old when she married—delicate, tall in stature, with narrow chest, and troubled with a severe cough. She gave birth, at intervals of about two years, to five children, each of which she suckled for about six to nine months. I have seen this lady during all this time growing, if I may say so, stronger and healthier. She developed into a model of robustness, and is at the present day, as a matron fifty years of age, one of the most handsome women in the neighbourhood where she lives. After the death of the above-mentioned eldest sister, the widower proposed marriage to a third sister, living under the roof of my friend, her brother-in-law. The girl was alarmingly delicate, had had a cough for many years, and also other symptoms of consumption.

'My friend and I had a consultation over the matter, and we decided to inform the would-be husband of the real state of affairs, and to oppose the marriage strenuously. Fortunately for him and for the girl, the gallant and enamoured officer pooh-poohed our warning, and we experienced in the young married woman the same pleasant surprise as in her elder sister. She gave birth in fairly rapid succession to three children, whom she suckled, and all the while she became steadily stronger and more vigorous, so that she is considered to-day one of the healthiest women among her acquaintances. Both sisters—the elder one now in the fifties, and the younger one in the forties—have survived their husbands, who were both in very good health. According to our modern terminology, both have so far altered the state of their organism that they no longer offer any suitable soil for the growth of the tubercle bacillus. For the better understanding of these experiences, it is necessary to add that the first-mentioned wife of my medical friend lost a boy, one year old, with symptoms of meningitis, and her eldest daughter,

at the age of twenty, from pulmonary tuberculosis, about four months after her first confinement.'

Such experiences would not be possible without the favourable influence which married life can exert on the general state of nutrition—that is, on the metabolism of the female organism.

As regards, finally, the question whether one of the diseases which we have considered in this chapter may form a reason for prohibiting a contemplated marriage, a great deal depends upon circumstances. We may well imagine cases where such marriages can take place with the consent of both parties, always provided that neither of them is in the dark as to the true state of things. But regard for the offspring must, in such cases, also play an important part. Where there is a possibility of children being born to a father or mother suffering from a hereditary disease, marriage is, *a priori*, out of the question—at least, theoretically; but in most such diseased conditions there is, to begin with, a physical incapacity which precludes the possibility of conception. Altogether, these cases cannot be decided by fixed rules, but each must be considered on its merits, and with a full appreciation of all the factors concerned.

Reference must, however, be made to one or two special contingencies. The most important is probably appendicitis. In view of the fact that appendicitis can have most disastrous consequences if complicated with pregnancy, I consider it advisable to recommend, if possible, the operative removal of the appendix before the consummation of the marriage, especially in those cases where the appendicitis has been a recurrent one, and where the danger of a relapse during married life is therefore particularly great. Whether the patients concerned accept the advice is a different matter.

What I have just said applies to even a greater extent in the case of gall-stones, an affection which is hardly likely ever to assume such serious proportions as to constitute an insurmountable obstacle to matrimony.

Neither is ulcer of the stomach a disease which is an impediment to marriage; but, of course, a postponement is indicated until a cure has been achieved. Experience has, however, taught me not to expect that this recommendation will always be listened to, salutary though it is. The parties concerned prefer to take the risk in the hope, which is, indeed, often justified, that marriage will bring along with it the necessary care and attention.

XIII.

DISEASES OF THE KIDNEYS IN RELATION TO MARRIAGE.

By P. F. RICHTER, M.D. (Berlin).

That the condition of the kidney is of the greatest importance with regard to the contraction of marriage, and that it has considerable influence on the married state, as well as on the offspring, is a fact which does not require demonstration. The very situation of the urinary organs in close proximity to those of generation is alone sufficient to create an intimate connection between them. Moreover, in the female pregnancy and childbirth cause an increased amount of work for the kidneys, and it is clear that disease of these organs must have enormous practical consequences during these processes.

Nephritis.—If the question of marriage arises in regard to a man or woman who suffers from chronic inflammation of the kidneys, it is, in the first instance, necessary to make sure about the diagnosis of the case; for it is well known that there are cases of so-called physiological albuminuria which differ from real nephritis, and they are not necessarily incompatible with marriage. But even where the albuminuria is not dependent on organic disease of the kidneys, there are occasions when the greatest caution is demanded. This applies particularly with regard to young girls who are subject to the so-called albuminuria of puberty; for, as already mentioned, pregnancy and labour impose such a considerable task on the kidneys that, even when healthy, they are sometimes incapable of fulfilling it without deriving serious harm.

Such girls must, therefore, by suitable treatment, be cured of their albuminuria before marriage can be thought of, although frequently enough the albuminuria of anæmic and chlorotic young women undergoes a rapid cure by marriage, when other remedies have failed. No one is better qualified to express an opinion on the outlook of a case of this sort than the family doctor, who is familiar with the early history of the patients in question.

Where the case is one of chronic nephritis proper (Bright's disease), it is as well to remember that the illness is practically incurable, though many patients with this disease can live and follow their occupations comparatively free from symptoms and complaints for as long as twenty years, or longer.

The influence of the married state on the course and duration of the disease does not manifest itself alike in men and women, and we shall therefore consider it under separate headings.

Influence of Marriage on the Chronic Nephritis of the Husband.—Married life does not seem to possess any elements which tend to aggravate nephritis in a man. No doubt cases are frequently seen where Bright's disease, which has hitherto remained latent and unrecognised, has developed, soon after marriage, a rapid character, and terminated fatally within a comparatively short time. But it is not as a rule the married state, as such, which is responsible for the aggravation, but external contingent circumstances. Where the struggle for existence makes life harder, where the husband, in order to maintain his family, has to work more after his marriage than he did when he was single, the illness is sure to find a suitable soil for further and grave development, especially where the poor patient also lacks the requisite nursing and attention.

Where the outward circumstances are favourable, where the necessary comforts of life can easily be obtained, where exacting employment can be avoided, where it is possible to

seek in the winter a refuge in suitable southern climates, and where similar other luxuries can be indulged in; further, where a regulated mode of life does not offer opportunities for excesses of any kind, and where the nutrition is wholesome and appropriate for an invalid with diseased kidneys—under these circumstances the illness is more likely to be influenced beneficially, and the married state more likely to result in a prolongation of the life-duration.

As to the character of the married life, and especially as regards the gratification of the sexual activity and the possibility of propagation, it is certainly true that chronic Bright's disease is reckoned among those diseases which lead, in the course of time, to a diminution of the virile power. But this influence must not be exaggerated. In the far-advanced stages, when the vitality is at a very low ebb, when all vegetative functions are at a standstill, when the unhappy and exhausted patients are but the shadows of their former selves, complete absence of the sexual desire is the rule. On the other hand, experience tells us that, during the latent stages, which may last for years, and even decades, and in the course of which the disease manifests itself by traces of albumen only, there is generally no pronounced impotence such as to attract the attention of the patients, and the latter are fully capable of doing justice to their marital obligations. But it must be admitted that there are exceptions to this rule.

Influence of Marriage on the Chronic Nephritis of the Wife.—In women the relations between marriage and nephritis are of enormously greater importance than in men, as pregnancy and childbirth, especially pregnancy, exert a most complicated influence on the activity of the kidneys.

In discussing this influence, we must keep the two following points apart from one another:

1. Disease of the kidneys in association with, or as a consequence of, pregnancy.

2. Pregnancy in association with previously existing disease of the kidney.

These are two prognostically different conditions, which vary also with regard to the dangers which they occasion to the mother and to the offspring.

Nephritis of Pregnancy. — As regards the renal troubles which are dependent on pregnancy, it is usual to include them under the name of 'nephritis of pregnancy.' They generally make their appearance in the later months, and in persons who have previously never suffered from disease of the kidneys. The urine then contains a large quantity of albumen and other abnormal constituents, and the other usual symptoms of acute nephritis—for instance, dropsy—are generally also present. With the end of the pregnancy the condition, as a rule, subsides. How the pregnancy gives rise to this nephritis is not positively known, and opinion varies on the point. It is thought that the injury is caused by a retention of poisonous substances in the blood—a sort of toxæmia due to deficient renal activity.

The principal danger of the nephritis of pregnancy is the possibility of the condition becoming chronic—in other words, of the acute nephritis developing into a chronic nephritis. Fortunately, this does not happen very often, nor are the chances very great that a pregnancy-nephritis will recur in subsequent pregnancies.

Another serious danger which threatens women with pregnancy-nephritis is the possible occurrence of eclampsia, though this also happens comparatively rarely. Miscarriage has been observed several times, and in not a few cases affections of the retina of the eye have proved an undesirable complication. With regard to the danger accruing to the fœtus *in utero*, we shall have something to say soon.

As to how these dangers are to be averted, and how far artificial interruption of the pregnancy is justified, medical opinion is not unanimous. The majority of authorities think that the ordinary treatment should be tried first, and that miscarriage should be brought about only if that treatment

is unsuccessful, and the case grows from bad to worse. Others maintain that no time should be lost by waiting, and that the premature labour should be instituted at once. But it is important to remember in this connection that the results of such active interference are not by any means certain, and, besides, the interruption of the pregnancy is a risky undertaking, which presents perhaps greater dangers than the evil which it is intended to remove.

Influence of Pregnancy on Chronic Nephritis.— We must say now a few words on the influence which pregnancy exercises upon a previously existing nephritis. That influence is, in the opinion of most observers, a very unfavourable one. The reason lies, firstly, in the increased amount of work which the kidneys have to perform in consequence of the disturbances in the circulation ; and, secondly, in the direct damage which the chemical injuries produce in the substance of the kidneys. As a matter of fact, we not infrequently observe that renal disturbances which have apparently become healed, and latent processes which gave rise to no symptoms, break out afresh during pregnancy and assume an active character. The hitherto slight albuminuria increases in severity ; dropsy appears, the organs of circulation are affected, the general condition becomes worse, and such complications may be added as lead to a fatal issue in a very short time. If the nephritis does not develop so alarmingly during the first pregnancy, this is sure to be the case in subsequent ones, and the patient is bound to succumb in the end to her renal troubles. There are, however, exceptions to this, and sometimes there is even an improvement in the condition to be observed during a pregnancy.

In view of what has been said, it almost follows as a matter of course that the prohibition of the marriage of women with chronic nephritis is absolutely necessary. It is the duty of the medical man whose advice is sought to point out the dangers which the non-observance of this prohibition will in all probability bring about. In the case of married

women with chronic nephritis, conception and pregnancy must be avoided. Where these processes do not supervene, the illness takes in married women the same course as in women who are not married.

If pregnancy does occur, it is necessary for the medical man in attendance to weigh carefully whether and how long it is advisable to wait, and to treat the case meanwhile medically and dietetically. There is not much difference of opinion between the medical authorities, that in this sort of cases active interruption of the pregnancy should be at once resorted to, especially if the symptoms exhibit a tendency to grow worse. Nature herself tells us that this is the proper course to adopt, as spontaneous miscarriage in women thus affected is very often succeeded by a marked improvement in the nephritis. Seeing that the chances of a viable child being born to a mother suffering from chronic Bright's disease are very slight, the decision to bring about a premature labour will not cause very great difficulties.

Where the first pregnancy has been successfully tided over, in spite of an existing chronic nephritis, further pregnancies must be avoided, as they only tend to bring the mother 'nearer and nearer to her grave.'

With respect to lactation, it is not necessary to prohibit mothers from suckling their babies if the nephritis is one occasioned by or during the pregnancy, but the suckling must not be allowed in the presence of a chronic nephritis.

The Influence of Nephritis in the Parents on the Offspring.—In conclusion, there remains something to be said on the influence which Bright's disease in one or the other of the parents, and especially in the mother, exercises on the life and health of the offspring. As far as pregnancy-nephritis is concerned, that influence is practically *nil.* Where it is not necessary in the interest of the mother to interrupt the pregnancy, and a living child is born, the disease does not show itself in any way in the latter. But it is different in the case of chronic nephritis. Here the disease

presents from the point of view of the child two dangerous factors: Firstly, chronic nephritis causes very often the intra-uterine death of the fœtus, because of the deterioration in the nutrition material which it receives from its mother's organism; and, secondly, the pregnancy is frequently interrupted spontaneously through premature labour.

Once out of the uterus, the danger to the child is at an end. Chronic nephritis is not a hereditary disease in the ordinary sense, and the few cases of 'hereditary albuminuria' which have been reported as having attacked several members of the same families at various ages are more of interest as medico-literary curiosities than as factors possessing a practical importance.

Movable or **Wandering Kidney** is of practical importance in women only. In men the condition is seen very seldom.

Pregnancy and childbirth are considered to offer opportunities for the complaint to arise, or to become aggravated. The relaxation in the abdominal walls, especially after repeated pregnancies, and the muscular over-exertion during labour, as well as insufficient care after that event, are regarded by many authors as important causes in the displacement of the kidneys. This is particularly likely to be the case in women who have gone through several pregnancies. On the other hand, in a few cases pregnancy has been beneficial in correcting an existing movable kidney.

At all events, the condition is quite a harmless one in the great majority of cases, and it does not therefore form a reason for prohibiting a projected marriage.

Pyelitis also is far more frequent in women than in men. There is nothing in marriage which can in any way act injuriously in the case of a man suffering from this disease. But it is a long-lasting and tedious complaint, difficult to treat, and but seldom perfectly cured.

In women pyelitis is often caused by the congestion which takes place during pregnancy in the pelvic and abdominal

organs. It cannot be regarded as a harmless affection, though in a few cases reported it has not interfered materially with pregnancies which arose in the course of it.

Tuberculosis of the Kidney, as an affection independent of general tuberculosis or of pulmonary consumption, is a comparatively frequent disease. In married men it is apt to undergo an aggravation through the sexual intercourse, and abstinence from the latter is therefore indicated.

In married women pregnancy and labour are even more likely to affect injuriously an existing renal tuberculosis than sexual intercourse, and cases previously latent or presenting but slight symptoms may suddenly assume serious proportions, or break out afresh.

To avert the dangerous consequences of a combination of pregnancy and tuberculosis of the kidney, two remedies are possible: artificial premature abortion and nephrectomy, or the removal of the diseased kidney. The latter, as the more permanent cure, is the preferable course to adopt, and it is even possible for the pregnancy to continue to its natural conclusion, and for subsequent pregnancies to occur notwithstanding the nephrectomy.

As to whether women who have had tuberculosis of the kidney, which has been successfully treated either medicinally or surgically, should be permitted to marry, the decision depends very greatly on the previous history of the case; but generally speaking, an absolute prohibition is probably not justified.

A serious condition arises if tuberculosis develops in one kidney after the other one has been removed by operation, and it is important in this connection to consider whether women with one kidney only may marry or not. A general answer to the question cannot be given. On the whole, it may be said that the permission to marry need not be withheld if it is probable that with the removal of the diseased kidney the cause of the disease was also removed, and if the remaining kidney is healthy.

Renal Calculi and Renal Tumours. — Marriage exercises hardly any influence on these affections, but their duration and course cannot be determined beforehand, and the life of the patient may be endangered by acute complications supervening at any time. It appears, moreover, that heredity plays here also a certain part, as the offspring of individuals with renal calculi are frequently the subjects of this affection, though not as often as it was formerly believed.

In any case, these circumstances are worth taking into consideration when the question of marriage arises in conjunction with renal calculi, especially in such districts where the complaint is more or less endemic.

XIV.

GONORRHŒAL DISEASES IN RELATION TO MARRIAGE.

By PROFESSOR A. NEISSER (Breslau).

Danger of Sexual Diseases.—The object and purpose of marriage being—

(1) The legitimate gratification of the sexual desire ;
(2) The procreation of offspring, physically and morally sound ;
(3) An increase in the reciprocal happiness of the married persons, and the proper bringing-up of the children,

it follows that diseased individuals should not be allowed to marry because they cannot fulfil these conditions.

This applies particularly to sexual diseases, because to the impossibility to carry out the objects of marriage through the disease of one of the partners is added the further risk that the other partner will, in virtue of the communicability of the disease, also be attacked, and that the object of the union will thus be entirely or partially frustrated by the illness of both partners. There is, besides, an aggravating element in the circumstance that the infection of the second partner under such conditions is not regarded as an unfortunate affliction, but as the outcome of a more or less reprehensible conduct on the part of the original sufferer. This engenders a feeling which, if it does not always actually lead

to an outward dissolution of the marriage, causes, at least, an estrangement which often destroys the happiness of the union for good. Though there often attaches no blame to the partner bringing the disease into the marriage, because he was not aware of his illness and of the consequences springing from it, or because he regarded himself on the strength of medical advice as a fit subject for marriage, there yet remains for the other partner who has acquired the disease through infection the fact and the knowledge that the party who was already suffering from the complaint before the marriage is the cause of her illness.

There is hardly another disease dealt with in this book—not even syphilis—that has such far-reaching and momentous consequences for the married state as gonorrhœa.

Especial Danger of Gonorrhœa in Marriage.—In the first place, gonorrhœa is an eminently contagious disease, the infection taking place almost exclusively by means of sexual intercourse.

The contagiousness may, moreover, last for months or years, and yet the phenomena from which the contagion proceeds may be so slight that the presence of the still existing infectious disease can be recognised by the most careful observation only and by special examinations undertaken for that particular purpose.

Secondly, gonorrhœa attacks principally, and in most cases almost exclusively, those organs which are entrusted with the sexual functions.

Finally, there supervene severe complications which may lead to permanent infirmity, valetudinarianism, and extreme nervous collapse, conditions which disturb most materially the happiness of a harmonious marriage, and which result often enough in pecuniary troubles.

The consideration which gonorrhœa deserves, on account of these melancholy consequences with regard to the subject of marriage, is in so far the greater, as it is one of the most prevalent diseases to which mankind is subject, and as it

certainly is not, in point of frequency, surpassed by any other disease, if we take into account the age at which marriage generally takes place. The assertion that of the adult male population inhabiting large towns permanently or temporarily, only an insignificant proportion escape gonorrhœal infection, is probably, extreme as it may sound, not at all exaggerated.

And yet it is just this very prevalent disease—the importance of which is underrated more than that of any other —which is hardly noticed, and which is either not treated at all, or only improperly and insufficiently. No wonder there are a large number of uncured cases, or, in other words, of cases which possess full infectiousness, but which do not constitute a disease in the eyes of the persons affected.

It is well known that gonorrhœa is a disease which is either localized in the seat of infection, or which spreads over various organs in the shape of complications. It is not, however, a constitutional disease which modifies the organism in any way, so as to bring about a certain immunity against future infection. This is why gonorrhœa is so important from the standpoint of married life. The same individual may be attacked by the disease again and again, especially at a time of life when about to marry, or when already married, notwithstanding the fact that he has in his younger days suffered from gonorrhœa once or several times.

A further factor is the ease with which the disease is conveyed to other persons. It is sufficient that the gonococcus—that is, the infective micro-organism contained in the gonorrhœal secretion—should come in contact with a suitable, though quite healthy, mucous membrane, and that it should be deposited upon it—without any injury to its surface—for that micro-organism to multiply and subsequently to penetrate into the tissues, and thus to give rise to the disease. There is consequently even no need for the accomplishment of the sexual act in order to cause infection ; the simple contact of the two respective genital organs or the moistening

of these organs with a secretion containing gonococci is sufficient.

It is clear that the danger of infection is greater, the greater the quantity of gonococci still present. For this reason chronic gonorrhœas are always less serious than the acute stages, and not infectious every time there is sexual connection. In the married state, however, there is danger in every case, since on account of the frequency of the intercourse even a few gonococci still present must eventually become active, particularly as frequent coitus (such as is indulged in during the first few weeks of married life, perhaps after a long abstention previous to marriage) is in itself sufficient to cause an increase in the inflammation, and consequently a multiplication of the gonococci.

Incidence of the Two Sexes.—Regarding the question whether the two sexes are affected to the same extent by the injurious consequences to the married state just mentioned, there is no doubt that on the whole the danger proceeds more from the husbands than from the wives. But there is on that point a very great difference according to the social position of the men and women.

Frequency of Gonorrhœa in Men.—As regards the men, it may be said that the vast majority of them—in fact, all with very few exceptions—without distinction of social conditions, rank, or education, are in the habit of indulging in sexual intercourse before marriage, and that they are consequently subject to the danger of venereal infection. This risk of infection is not, however, the same in every class of men. Those belonging to the upper and richer circles are attacked in proportionately far greater numbers than those belonging to the lower strata. The prevalence of venereal disease among males always depends on the extent to which they resort to intercourse with mercenary prostitutes. Workmen, soldiers, and so on, can more easily find non-prostitute girls of their own class willing to enter into amorous relations with them, and they are therefore less

exposed to the danger of infection than those men who have recourse almost exclusively to prostitutes who lend their charms for gain.

On the other hand, the danger arising to the married state from men of the upper classes is not so great as that emanating from men of the lower social scale, and this applies both to the time when the marriages take place as well as throughout married life. The better knowledge of the medical aspect of the question which prompts the more affluent members of society to seek and subject themselves to proper treatment contributes in no small measure to the real cure of more gonorrhœal cases among them than is the case among uneducated men, who concern themselves but little about their diseases as soon as the latter cease to cause them any real trouble. There is also an additional danger in the fact that individuals of the lower classes marry, as a rule, earlier than those of the upper classes, and that many young men of this description enter married life with their gonorrhœas in an active state. Among hospital out-patients fresh attacks of gonorrhœal infection in married people are also seen far more frequently than in private practice. To what extent a different conception of 'morality' among the two classes is responsible for this difference in the number of infections acquired extra-conjugally, it is difficult to say. In any case, there is the factor to reckon with, that married men belonging to the working classes have in such cases, as a rule, recourse to street-walking prostitutes, while the married men of the better classes, who know too well the dangers of prostitution and are in a position to pay for superior female intercourse, are more in the habit of visiting the less dangerous 'demi-monde,' or of indulging in the luxury of keeping a mistress.*

* This description is no doubt accurate in every detail for the Continent of Europe. It does not, however, apply, in my opinion, to England. From a fairly extensive experience, I can say that gonorrhœa among married men of the working class is very rare indeed, unless it is a relapse of an infection which existed previous to marriage. By

Frequency of Gonorrhœa among Females.—There is no doubt that many girls belonging to the poorer and lower classes enter the married state in an infected condition, acquired previous to marriage, while among girls of the higher classes gonorrhœa hardly ever occurs. But altogether the number of female persons affected with gonorrhœa is not inconsiderable—at any rate, it is far greater than shown by statistics. The reason why these statistics are so unreliable is plain enough. In the first place, the absence of all symptoms leaves the patients, as a rule, ignorant about their illness, so that they refrain from seeking medical advice; and, secondly, women, if they suffer from a sexual disease, are often prevented by shame and reticence from subjecting themselves to medical examination and treatment. We can also judge of the number of unrecorded females who are affected with gonorrhœa from the very many cases of blenorrhœa in newly-born infants, whose mothers have never been treated for gonorrhœa.

Danger of Gonorrhœal Infection in the Married State.—It does happen occasionally that reckless individuals get married while suffering from gonorrhœa in an active stage, but such persons form an insignificant minority when compared to those from whom infection emanates while under the influence of the disease in a chronic state.

We know from experience that although the bulk of gonorrhœa cases are really cured, there remain a very considerable number of them of which we cannot speak as cured. Many such cases are left with residues which are recognisable by special methods of examination.

But then we also know that very many of these 'uncured' individuals marry, or have been married for years, without

---

close questioning I have nearly always been able to establish the latter point. On the other hand, I am sorry to have to say that of the fresh cases which come under my notice a very large proportion—about 20 per cent.—are those of married men presumably belonging to the better classes.—TRANSLATOR.

conveying the gonorrhœa to their partners. We must therefore conclude that not all these post-gonorrhœic residual affections are infectious; there are among the uncured cases of gonorrhœa, generally described as 'chronic,' some which are infectious and others which are not.

With respect to the contraction of marriage, the question consequently arises: Is it possible to distinguish between the two groups of so-called 'chronic gonorrhœas,' which we know to exist as a matter of fact; and if so, how can it be done?

First of all, we must lay down the following principle: Neither the subjective sensation of the patient nor the symptoms which are visible with the naked eye give an indication of the infectiousness of any one particular case.

The most insignificant mucous discharges of which the patient is not in the least aware, or which cause him no trouble at all, may be either infectious or non-infectious; and the same thing may be said with regard to the severest cases of gonorrhœa, which occasion a great deal of complaint. There may be gonococci present in the most unnoticeable, most superficial catarrhs of the mucous membranes, and they may be absent in the most distressing and most dangerous diseases of the urogenital organs. Though there is no difficulty in diagnosing whether the disease was originally caused by a gonorrhœic infection, the outward signs offer no evidence whether that infectious gonorrhœic disease is still present, or whether what we have before us is nothing but a residual inflammation of a non-infectious nature. It is quite possible for the gonococci to disappear, and to leave behind such changes in the organs which are, practically speaking, fresh diseases possessing no infectious character.

It is, therefore, essential that every individual who presents any symptoms derived from a former gonorrhœa should be subjected to a special examination for the purpose of ascertaining whether those symptoms are still of an infectious nature. It cannot be repeated too often and with too much

emphasis that even the most insignificant processes may retain their infectiousness.

Particular stress must also be laid upon the circumstance that this infectiousness can continue for years in spite of the absolutely certain exclusion of a new infection. Practically speaking, we must take it that the gonococci are capable of a vitality extending over many years.

It is believed in many quarters that the gonococci found in chronic gonorrhœas gradually diminish in virulence. Whether this supposition is right or not—it cannot be said to be proved with certainty—it has not from a practical point of view—in other words, for the estimation of each individual case—the slightest value. For even if such a diminution in the virulence is possible, we have the fact to reckon with that most acute and most malignant gonorrhœas have been caused by infection from chronic cases. We cannot, therefore, place any reliance upon this hypothesis, but must always ask ourselves: Are any gonococci present at all or not?

This is the question round which the problem turns, whether marriage should be permitted in the presence of gonorrhœa, and I am most decisively of the opinion that the examination for gonococci alone enables the physician to say whether that permission should be given or withheld. If gonococci are found to be present, the latter alternative must be adopted without regard to the clinical aspect of the case, be that aspect favourable or unfavourable.

But if there is no doubt as to the course to be adopted when gonococci are found to be present, it is not quite so easy to come to a decision when the examination for gonococci does not yield a positive result. In other words: Does the non-finding of gonococci in the secretion of a patient with chronic gonorrhœa prove without a doubt that the particular case is no longer infectious?

It is very evident that even the most careful examination does not preclude the possibility of mistake, and it must be

admitted that it is never possible to assure a candidate for marriage, without the shadow of a doubt, that an infection will not proceed from him under any circumstances. It does not, however, follow that because we cannot say with absolute certainty that an uncured chronic gonorrhœa is non-infectious, we are under the necessity to refuse the consent to marriage to every candidate so affected.

The proper course to be adopted is, in my opinion, to make the examination for discovering the presence of gonococci as searching as possible, and to be guided by the result. After all, the number of mistakes which have been made, notwithstanding the application of all the methods which are at the disposal of science, is practically *nil.* It is true that the physician who refuses on principle to give his consent to the marriage of individuals suffering from a gonorrhœa which is not quite healed will never be made responsible for any gonorrhœal infection which may be conveyed afterwards to the other partner; but then he is sure—if his advice is always accepted—to make marriage impossible to numerous men who might have married without bringing any risks upon their wives.

In the first case, he may perhaps save from infection one woman out of a thousand; in the second, however, he may unjustly condemn to celibacy hundreds of men.

It must undoubtedly be admitted that wherever a complete cure can be achieved, it is possible to say with absolute certainty that an infection from an individual thus situated is entirely out of the question. And yet I cannot share this view, for the very sad, but to me conclusive, reason that this complete cure, which means a complete removal of all the outward signs, is an impossibility in regard to the great majority of the cases of chronic urethritis. I have therefore for many years taken up the standpoint that I allow myself to be guided in the determination of the infectiousness of chronic affections of the urethra solely and entirely by the presence or absence of gonococci. As long as gonococci can

be proved to be present, or as long as their presence must be regarded as probable, the consent to the marriage must decidedly be refused, and the treatment continued with all energy until the presence of gonococci can be excluded.

On the other hand, if I am firmly convinced that gonococci are no longer present, I allow myself to be guided with respect to further treatment and attempts at cure by the clinical condition.*

In those cases where the marriage has taken place before the physician has fully satisfied himself as to the absolute innocuousness of the husband's condition, it is, in my opinion, necessary to recommend condomatic intercourse only and an active continuation of the treatment.

In the event of any suspicious symptoms making their appearance in the wife, it is absolutely indispensable to subject her at once to a thorough examination, including a microscopical examination of the secretion, notwithstanding all protests and objections. It must be impressed upon her that the neglect of acute gonorrhœas, most particularly among the married women of the better classes, is the source of endless misery, and often of lifelong invalidism.

Not infrequently there appears soon after marriage in men who were before their marriage examined most carefully, and on the strength of that examination permitted to marry, a profuse discharge, which naturally causes them the greatest anxiety. Of course it is not impossible that a diagnostic error may have been committed, but it must be remembered that under such circumstances there is often an exacerbation of the chronic non-infectious catarrhal process, probably brought about by the frequent indulgence in sexual intercourse.

If it is found that both husband and wife are affected, they must both be treated most carefully and persistently, and the treatment, if commenced soon enough, will in most

* Those interested in the technical details will find in the large manual an exhaustive description of the examination for gonococci.

cases be crowned with success. They must not resume sexual intercourse until a cure has been achieved in both of them.

Extragenital gonorrhœal infection in adults takes place very rarely, but insufficient cleanliness may cause indirect infection through the common use of objects soiled with the secretion. It is important to bear this in mind.

Injury to Conjugal Fruitfulness through Gonorrhœa.—Gonorrhœa plays an important part as a cause of sterile marriages. It is computed that about 40 to 50 per cent. of all barren marriages owe the sterility to gonorrhœic diseases. The immediate cause is either a loss of the potentia generandi or cœundi in the husband, or a loss of the potentia gignendi in the wife.

The loss of the potentia generandi through gonorrhœa may take place in three different ways:

1. Through the semen containing no spermatozoa at all, or very few (azoospermia, or oligospermia).

2. Through the semen, though normally constituted, not taking its normal course (aspermatism).

3. Through the spermatozoa losing the mobility required for the exercise of their function (asthenospermia, necrospermia).

Ad 1. Azoospermia is in most cases due to a previous gonorrhœal disease of the organs along which the semen travels, the epididymis and spermatic cord. Epididymitis, or the inflammation of the epididymis, which is a frequent complication of gonorrhœa, and which may end in the total or partial destruction of that organ, results sometimes in practical sterility, in spite of the retention of the potentia cœundi. Oligospermia is a condition of the spermatic fluid, in which there are only very few spermatozoa present. The chances of impregnating the female ovum are here not absolutely extinct, but diminished to a very considerable extent.

Ad 2. Aspermatism, or the complete absence of semen, is

a rarer condition brought about by anatomical alterations, principally strictures, in the male member, which prevent the outflow of the fluid—at all events, with sufficient force to enable it to reach its destination.

Ad 3. Necrospermia, or the functional incapacity of the spermatozoa, is mostly caused by gonorrhœal inflammation of the prostate and vesiculæ seminales. These organs secrete a fluid which is essential if the spermatozoa are to retain their vitality and mobility; and if that fluid becomes impaired, the semen, of which it constitutes a part, loses in consequence its fruitfulness and utility. The extent of necrospermia varies according to the stage of the disease. It is sometimes temporary only, and sometimes permanent.

Where for one of the above reasons the potentia generandi is extinct, and the physician in attendance has satisfied himself by repeated examinations of the seminal fluid that that loss is beyond recovery, it is advisable that the patient should be told the truth, though at times this may require great tact and consideration. Such a course often saves unnecessary trouble to the wife, who, in the belief that she is the party at fault, subjects herself to all sorts of treatment for the purpose of removing her supposed sterility. To the husband, too, the matter is not without practical importance, as the knowledge that he is to remain childless relieves him of the obligation to work hard in order to make provision for a family, or enables him to permit to the wife indulgences and luxuries which would otherwise be out of place.

To what extent the wife of a husband who is affected with impotence of procreation should be enlightened depends mostly upon whether it is the wife herself who comes to consult the physician—in that case, she has, in my opinion, a right to be told the truth—or whether husband and wife present themselves conjointly, when the husband becomes, so to speak, the patient of the doctor. In such cases I do not think the physician has a right to become a party to

differences between husband and wife, and it is his duty to respect the confidence placed in him.*

Cases of loss of the potentia cœundi through gonorrhœa are more rare than those due to impotentia generandi. They are produced either by local processes which render normal erection impossible, or which cause the sexual act to be accompanied by such pain that the patients are compelled to desist from all intercourse. Or else the cause lies in general disturbances due originally to the gonorrhœa, which give rise to the same untoward results. In some of the cases the act of ejaculation takes place prematurely, thus making it impossible for conception to occur; in others there is a more or less constant discharge of semen, which is bound to have a deleterious influence on the patients in question. In the first place, these emissions when they occur very frequently conduce to a weakness of the body generally and of the nervous system specially. Besides, they often form the starting-point of sexually neurasthenic conditions through the exaggerated importance which the patients attach to their loss of semen. In this way a new factor is created, which is certainly apt to bring about long-lasting or even permanent impotentia cœundi, the more so as in many cases there is, in fact, a certain objective weakness of the erection. I have often satisfied myself that individuals who are originally in perfect health can develop into severe neurasthenics through their chronic post-gonorrhœic conditions, if there are light disturbances of the virility present. We can even speak of gonorrhœal neurasthenia in the more acute stages of the disease, when the loss of virility is highly pronounced. Altogether it is difficult in the majority of cases to separate the local injuries from the more general. And if the conditions have existed for some time, it is not even possible to find out whether the patient is complaining of local troubles and loss of virility because of his neurasthenic general con-

* The question of medico-professional secrecy is dealt with in a special article.

ditions, or, *vice versâ*, whether the local affections have given rise to the impotentia cœundi and to the psychical depression associated with it. That the necessary treatment, both local and general, has to be instituted, and the sooner the better, stands to reason. The chances of recovery are often exceedingly favourable.

As regards the wife, it may be observed that gonorrhœa as such does not create sterility, although this may happen in rare cases. What does happen very often is that a gonorrhœa acquired previously to or during a pregnancy causes at and soon after the labour such mischief in the internal organs of generation that sterility ensues as a result. Thus the condition develops which is designated as one-child sterility, a condition which can lead to the absolute sterility of a marriage if a woman affected with this form of gonorrhœa before her marriage marries for the first time.

Injuries to the Family Happiness.—We have already said that one of the objects of marriage is the permanent cohabitation of two individuals who desire to create a household and a family, and who enter into the matrimonial union with the hope that they will make each other happy. Anything, therefore, which tends to imperil that happiness is of the greatest importance, and we have seen from the preceding observations that gonorrhœa plays in that direction a very considerable part. We have only to think of the material loss which gonorrhœa and its results are capable of causing to the breadwinner and his family, in order to appreciate their possible effects on the family happiness, especially, as it so frequently happens, if the wife who assists her husband in the earning of the livelihood falls a victim to the infection. Where such a calamity happens, and the poor woman is at least in a position to receive the necessary treatment and attendance, she stands a chance of avoiding a long duration of the illness and a number of severe complications. But when sickness and poverty go together, the misfortune is doubly great. If gonorrhœa

attacks the internal female organs, the best possible nourishment and rest in bed offer the only chance of a cure, and this is just what the poor cannot afford. For this reason the disease presents so often complications in women of the working class which are not seen in those who are better off. These complications result, on the one hand, in sterility, and necessitate, on the other, most serious operations. But these operations must be looked upon as the best solution of the problem, since they not only re-establish the health of the patient, but also her working ability. Frequently, however, this comes too late, and the family is already ruined. Where the wife of a poor working-man—who is, as a rule, the only person that looks after the household and the comfort of the husband—is ill, miserable, depressed, and bedridden, or where she must spend weeks and months in the hospital, the temptation of the husband to prefer the conviviality of the public-house to the cheerlessness of his own home, and to seek the company of other women, is too great not to cause many men to succumb to it.

There is further the question of the infection of the children. Although nothing is known with regard to a hereditary transmission of gonorrhœa, we have sadly too many instances of the disease being conveyed to the eyes of newly-born infants. It is calculated that at least 25 per cent. of all the cases of blindness are due to gonorrhœal infection during birth, and one medical writer has ascertained that in the large city in which he practises 25 out of 1,000 newly-born children suffer from this blenorrhœa neonatorum. This is a terrible figure, and one, moreover, which shows to what an extent gonorrhœa is prevalent among women without being recognised or medically treated.

Mention must also be made of the infection of older children through the common use of domestic articles, or through the occupancy of the same bed, though happily this takes place but rarely.

If it is remembered that all these troubles, the illness and

reduced working ability of the husband, the infection of the wife and children, the non-realization of the hoped-for bliss in the expectation of which the marriage was entered into, are in the last instance the consequences of a disease which could have been avoided, it will be easily understood of what importance gonorrhœa is from the standpoint of marriage and married life.

No possible excuse can therefore be found for those who marry with the knowledge that they suffer from gonorrhœa, or for those who become infected after marriage, and continue, nevertheless, to practise conjugal intercourse. Equal censure attaches to those who, though informed of the possibility that a chronic catarrh which has remained behind as a result of a former gonorrhœa might be infectious, do nothing to obtain in any way an assurance of their own innocuousness. In fact, such men often avoid a medical consultation for fear that they will be told what they do not like to hear: namely, that they ought not to get married, and they prefer to let misfortune overtake them—an example indeed of unaccountable frivolity.

A certain moral excuse there is for those who marry in full ignorance of the possibility that any infection may proceed from them, and also for those who have obtained the consent of a medical man to their projected marriage, but in whom the gonorrhœa has nevertheless retained its infectious character.

Prophylaxis.—We must now devote some amount of space to the consideration of the question whether it is not possible to avert the direful injuries which marriage suffers as a result of gonorrhœa.

In the first instance, both the medical profession and the public should take full advantage of the improved examination methods which make it possible now to tell with almost absolute certainty whether a given case of gonorrhœa is still infectious or not. There is no doubt that this is already done to a very great extent, and, as far as one can judge

from the numbers of the individuals who consult a doctor prior to their marriage, the number of those who enter the conjugal state with their gonorrhœa uncured must be considerably smaller than was the case twenty or twenty-five years ago. It is true that among the poorer classes the dangerousness of gonorrhœa is not yet recognised; the men particularly are under the impression that as soon as the subjective symptoms have been removed careful treatment is no longer necessary. Of course, such recklessness finds its revenge not only in the spread of gonorrhœa among the women who have extra-conjugal intercourse with these men, but also in the infection of the young women who get married to them. It would almost seem that the better plan to solve the problem would be to disseminate the necessary information as to the danger of sexual diseases not so much among the men as among the women. Perhaps the knowledge of the risks which these diseases leave in their train would deter as many women from illicit intercourse as is done nowadays principally by the fear of becoming pregnant.

But the further question arises whether it is sufficient, in order that the happiness of a marriage be insured, for a doctor to give his consent to the party presenting himself or herself for examination. Have the legitimate interests of both parties to the contract received their due recognition by the fact that one of them has obtained a one-sided consent to the marriage? We must not lose sight of the fact, no matter how highly we value the success achieved by medical science and medical skill, or the conscientiousness and care with which the medical examiner has carried out his duties, that the possibility of a mistake being committed by the doctor is, after all, not altogether to be avoided. Under such circumstances, then, it ought to be demanded that in marriage, like in any other contract, both sides should be in possession of all the information on the risks they are incurring, so that they could come to a decision accordingly.

The demand that not only the prospective husband should obtain from his doctor the consent to his marriage, but that the would-be wife, or her parents, should be informed on all points, is the more justified as the injurious consequences of an eventual infection occurring, notwithstanding the favourable view of the medical examiner, have to be borne, not by the husband, but mainly by the wife.

And of what use afterwards to the wife who has been infected by her husband is the consolation that the latter has before the consummation of the marriage subjected himself to a most scrupulous medical examination? Morally, no doubt, he is to a certain extent acquitted, but the whole injury, nevertheless, falls upon the innocently suffering wife.

The ideal state of affairs would therefore be for both parties to a projected marriage to discuss before its accomplishment, not only the social and economic arrangements, but also the question of their reciprocal health. As a matter of fact, I know quite a number of cases where this point was made the subject of the frankest discussion, and where it was settled to the full satisfaction of all the parties concerned. It cannot be denied that the conduct of the man who takes this course fearlessly and honestly deserves every praise and recognition.

We know, however, to our regret, that such voluntary action is taken by very few men. The prejudice existing universally against sexual diseases is responsible for the disastrous inclination to keep secret everything connected with them, and is, with respect to the subject of marriage particularly, sufficient to explain the silence maintained on the point. Who likes to speak on the eve of his marriage of former sexual intercourse, or perhaps of sexual disease?

But if the enlightenment of the girl's parents on the part of the suitor—for the sake of simplicity I will take this as the most frequent situation—does not take place voluntarily, can it not in any way be obtained by compulsion, directly or indirectly, so as to secure for the would-be young wife a

certain amount of protection from the injurious consequences of a possible previous gonorrhœa of the husband?

The suggestion has been thrown out that each of the contracting parties to a projected marriage should produce before the civil authorities a certificate of good health. Others, again, see in the introduction of some sort of compulsory life insurance previous to the consummation of the marriage a means to prevent matrimonial union with individuals who are obviously diseased, or strongly suspected of being so.

That such arrangements would in very many cases accomplish a great deal of good cannot be doubted, and it cannot even be said that there is any serious objection to a legal enactment providing for the obligatory certification of the health of would-be married couples, so long as it would be left to the discretion of the contracting parties to make what use they like of the information supplied by the compulsory medical certificates. But I cannot see the feasibility of giving to the State the power to prohibit any marriages for reasons of health or disease, unless it be one of those gross cases of affliction or infirmity where marriage would appear almost as a severe offence.

If the proposed arrangement would, however, confine itself to demanding a certificate of health from each party to the projected marriage to be submitted to the inspection of the other, we should achieve what I laid down as being necessary—namely, that the two individuals about to marry one another should be made acquainted with each other's previous history before taking the irretrievable step of joining their fortunes for good or evil. It would, of course, follow that the contracting parties would have, like in life insurance proposals, to mention the names of the medical men—if any—under whose treatment they have formerly been, and that the latter would be under an obligation to communicate their observations and views on the former diseases of their clients—of course, on the understanding that they are at

liberty to disclose what was entrusted to them under the seal of professional secrecy.

We must further consider how infections during the married state could be made amenable to civil and criminal law.

Criminally, sexual infections notoriously fall under the heading of bodily injuries, and many cases would undoubtedly be followed by punishment if there were any prosecutors. The demand has been made that the physician shall in every case communicate to the infected spouse the diagnosis, and explain to him—or her—the manner of the infection, for the purpose of enabling the respective married couple to adjust their differences, or to take the necessary judicial steps. The entire medical profession would doubtless resent such a duty being thrown upon it in these general terms. In very many cases the doctor has certainly no objection whatever to giving his client—husband or wife—the desired information, or to naming the precautions to be adopted; in many others, however, he would hesitate before doing so, and, reflecting what melancholy results might ensue from his communication, he might feel inclined to adopt an expectant attitude; or he might make an attempt to become informed, perhaps by a joint consultation with the other partner, whether the interests of both parties would not be better served by throwing the veil of silence over the whole affair than by making an open and inconsiderate disclosure. A good doctor is not merely a scientific expert: he must also be a helpful friend and a man of tact. Sometimes he can confer by silence far more good upon both husband and wife than by telling the truth.

But most cases of conjugal infection with gonorrhœa cannot be touched by the criminal law, because the husbands infect their wives neither with intent and premeditation nor through criminal negligence. They are not criminally negligent in those cases, either, where they get married in the honest belief that they are healthy and non-infectious,

because they are not sufficiently well informed in medical matters, or because they are prompted to act as they do by the mistaken advice of their medical man. Criminal negligence could, therefore, only be constructed if it were possible to prove that the husband did think of the possibility that he was diseased, or that he ought to have thought so, and that he nevertheless did not obtain a medical consent to his marriage.

And even where this consent has been obtained, it cannot be relied upon with confidence as affording a sure safeguard. We know how difficult it sometimes is from the purely scientific point of view to come to a decision as to whether the consent to a marriage should be given or not. Nor do all doctors possess that high degree of self-reliance and determination to make them absolutely indifferent to the wishes and interests of their advice-seeking clients. It would therefore be necessary, if the desired protection is to be of the highest possible kind, that the medical man, on the strength of whose opinion a marriage has taken place, should be held responsible for any infection occurring in unfortunate cases. It is very doubtful whether this is practically possible, and, besides, the result would be that no medical man would ever give an unqualified assent to a projected marriage. This might, perhaps, have the useful consequence that many candidates for marriage would reveal to their prospective partners the true state of things, so as to avoid all responsibility ; but, on the other hand, many would no longer consult a doctor before their marriage, since they could hardly expect any other answer than a refusal of the consent. This, again, could only be prevented by a law, such as we have discussed above, that a certificate of health must be presented by every candidate for marriage.

The suggestion has also been thrown out that, since a criminal prosecution for gonorrhœal infection of the married partner is hardly likely ever to occur, a threat by civil action should be permissible ; in other words, that the omission to

inform the future husband or wife that gonorrhœa has existed before the marriage should constitute a ground for claiming damages. In my opinion, this demand is perfectly justified.

It has further been asked whether the compulsory or voluntary notification by the medical profession of all cases of gonorrhœa coming under their notice could not be made use of as a means of protection against the reciprocal infection of married persons. But compulsory notification is out of the question. In the first instance, there is the difficulty of diagnosis, to which we have already alluded; and, secondly, the circumstance that many patients with this disease give to the doctor a wrong name and address. The obvious result of a compulsory notification measure would be the adoption of this practice on a much larger scale.

The whole question resolves itself, therefore, into disseminating as widely as possible the knowledge of the dangers which sexual diseases bring along with them; and the attempt in that direction made by the Société Française de Prophylactique Sanitaire et Morale is a very laudable one, and deserving of many imitations. This society has formulated the following circular with a view to its being supplied to those who are about to marry, or to their respective parents, by the officials entrusted with the registration of the marriage formalities. In view of the importance of the subject, I reproduce it verbatim:

'INSTRUCTION TO FUTURE HUSBANDS AND WIVES.

'You are about to marry one another and to create a family.

'You have on the strength of your mutual attachment and of your material conditions decided to lead a joint happy married life.

'But it is just as important to think of your health, from which will depend also the health of your partner and that of your children.

'Perhaps you have had the misfortune to contract one of those infectious diseases which are popularly called "diseases

of youth," "venereal diseases," or—very wrongly—"shameful and secret complaints."

'Two of these—gonorrhœa or the "clap," and syphilis or the "pox"—may bring to a family the direst consequences.

'If you get married while still suffering from an infective stage of one of these diseases (gonorrhœa, a still existing discharge; syphilis, the presence of a rash on the body, or of pimples on the mucous membranes), if you therefore convey with your full knowledge and with absolute certainty your disease to the individual who places trust in you, it constitutes a crime. Whoever becomes guilty of such an infamous action brings upon himself a shameful and disgraceful future, and may probably have to look forward to a legal dissolution of the marriage and the division of the common property.

'Gonorrhœa is conveyed through a discharge from the urinary passage, even only through an apparently insignificant drop in the morning; and is apt to cause, particularly in women, a series of complications (inflammation of the womb, peritonitis, etc.). It frequently gives rise to a long illness, necessitating staying in bed, and sometimes severe operations, and leads with almost absolute certainty to barrenness, and in very many instances to blindness in newborn infants.

'Syphilis, which commences with a small sore spot, and which leads subsequently to eruptions on the body and on the mucous membranes, can attack in its further course all the organs, and will cause, if the brain also become affected, very often softening thereof and insanity. Children of syphilitic parents are liable to die while yet in their mother's womb, or they come into the world misshapen and deformed. They can infect their wet-nurses and those around them, so that it may come to actions for damages and to a public scandal.

'Remember, that even with an energetic treatment, and even after many years, the cure of the disease may be insufficient and incomplete.

'It is therefore the duty of every honourable man to let himself be examined by a qualified doctor. But be on your guard against quacks! You will then know whether you are completely cured, and whether you may get married without risk, or whether you must yet postpone your marriage for a while. In this wise you will avert a great calamity.'

Some authors have carried their opinions further still, and advocated that venereal diseases should be regarded as a special ground for divorce, and I am inclined to concur with the proposal.

Now, supposing all or a portion of the suggestions which we have considered were to be adopted in practice, what would be the result? At first, no doubt, fewer men—for it is principally the male sex for whom these innovations are intended—would marry. After a time, however, and gradually, that would be achieved which we all desire so ardently, not only for the protection of the married state from the dangers of gonorrhœa and other sexual diseases, but for the protection of the nations in all their ranks and classes.

1. A restriction in the pre- and extra-nuptial sexual intercourse, which is at present decidedly practised to a greater extent than physiological necessity dictates, so as to avoid the dangers of such intercourse.

2. A more extensive familiarity with, and application of, the measures calculated to prevent gonorrhœal infection among those who cannot or will not refrain from sexual intercourse.

3. A far more careful treatment of acute gonorrhœa, from which, of course, mainly depends the future improvement in respect of all injuries arising from gonorrhœal disease. Only a very small fraction of the intra- and extra-nuptial infections—which, after all, are generally unintentional, and not even always recklessly occasioned occurrences—only a fraction of the still numerous complications would continue to happen if gonorrhœa were properly treated, and a cure attempted during the acute stage, an object by no means difficult to attain in the majority of cases. Two factors must, however, co-operate for this purpose—namely, doctor and patient.

If it was formerly possible to accuse medical science that it was not equal to this task, this is no longer the case. Medicine has at its disposal on the basis of the recognition of the gonococcus ample diagnostic and therapeutic auxiliaries,

and what scientific medicine teaches becomes daily more and more the common property of the medical profession.

But the lay public is still disinclined to acknowledge the importance of gonorrhœa, and the necessity of treating it carefully and seriously from the very first day. Our object must therefore continue to be the oft-repeated inculcation of the truth, and a specially effective means of warning will be found in the dangerousness of gonorrhœa and of its results to the married state.

XV.

SYPHILIS IN RELATION TO MARRIAGE.

By R. LEDERMANN, M.D. (Berlin).

In connection with no other disease is the physician so often asked for his opinion as to the marriageableness of a candidate for matrimony as in the so-called sexual diseases. But whereas we have in regard to gonorrhœa a sure means of testing the infectiousness of each particular case by the presence or absence of the gonococcus, we depend, as far as syphilis is concerned, entirely on empirical observations. Happily, however, syphilis is a disease which has been studied minutely for centuries; its effects and consequences have been investigated by generations of experienced observers, and the enormous material at our disposal enables us to draw certain conclusions, if not with absolute certainty, at least with a high degree of probability.

Considered from the point of view of marriage and the married state, syphilis has even greater importance than gonorrhœa, seeing that, in addition to being infectious through the external transference of the poisonous substance, it is also communicable to the unborn offspring through the medium of the germ cells.

There is a prejudice existing among the lay public that syphilis is incurable, for which there is no justification. There have been thousands of cases recorded of individuals who have suffered from the disease at some period previous to their marriage, and who have lived to an old age in full health and undiminished family happiness. All these cases

prove that syphilis can be cured so as to leave no injurious consequences behind, either in the ex-patient or in his family. There is a further proof of the curability of syphilis in the fact that persons who have formerly suffered from it have become infected again, for we know from experience that as long as syphilis lasts a fresh infection does not take place.

But if it is easy to answer the question whether syphilis is curable and whether those who have had the disease may marry at all, it is not quite so easy to say when a cure may be regarded as complete, or how soon after the infection marriage may take place. The answering of these questions requires great circumspection, and it can only be done by most carefully weighing the whole course of the illness, the treatment adopted, and all the other circumstances relating to the general constitution of the individual formerly affected.

It is, of course, clear that no syphilitic may marry so long as infectious symptoms of the disease are present, since he might disseminate the same by direct contact as well as by the common use of domestic utensils, but, above all, by the process of generation or conception respectively. Unfortunately, this apparently simple and evident principle is often disregarded, as shown by the numerous cases of syphilitic infections observed daily in marriages recently contracted. The obvious absence of diseased conditions is, however, not always a proof of cure, as syphilis often presents latent periods which may last for years, and during which there are no outward signs that the poison is still slumbering in the body with its virulence unimpaired.

It has hitherto been usual to fix the period during which infection may be conveyed by contact at from three to four years since the illness began; but although cases are known in which marriages recklessly entered into by syphilitics in the first years of the illness have turned out happy, and have not resulted in a transmission of the disease, there are, on the other hand, instances in which infectious symptoms appear, and transmissions occur, five, six, and even ten years afterwards.

A definite statement as to the time during which the danger of infection exists is therefore not sufficient; it requires supplementing by other factors as well, which enable us to fix somewhat more sharply the time-limit of the cure.

Among these factors we must take into consideration, in the first place, the course of the disease during the first years of its existence and the treatment adopted. It is true that far-reaching conclusions with regard to a radical cure cannot be drawn simply from the mildness and infrequency of the symptoms, and from their rapid disappearance in consequence of treatment. Often enough there supervene in such cases at a later stage severe tertiary symptoms, perhaps just because the patients, misled by the mildness of their illness, do not attach to it the necessary importance, and are negligent in the carrying out of the treatment. But if patients with a strong constitution and leading a sensible life are for three or four years under good medical supervision, and the disease takes a satisfactory course, the chances for the future are certainly favourable.

On the other hand, there are numerous cases in which secondary symptoms keep accumulating for years, and which must be judged with less favour. Some of these symptoms, such as the mucous patches of the mouth and pharynx, may, perhaps, be due to constant irritation caused by the use of alcohol or tobacco; but for all that the question of marriage in these individuals must be weighed with particular care. In other more or less inveterate cases with severe symptoms there frequently remains after the cure of the disease a general weakness of the organism which must have an important bearing when considered in connection with marriage.

As regards those patients who have at any time shown tertiary symptoms, we cannot say that they are in every case non-infectious, and that the fact of their having tertiary symptoms at all is a proof of their non-infectiousness. There are, however, cases in which tertiary symptoms appear early in the course of the disease, and there is no reason why the

secretion from these tertiary lesions should not be as infectious as that from secondary ones. The main thing is, therefore, the interval of time between the appearance of these tertiary symptoms and the original beginning of the disease. The longer that interval the less the danger of transmission, especially if all symptoms have in the meantime remained at a standstill. Importance must also be attached to the seat of those tertiary lesions. After cerebral syphilis, for instance, a consent to marriage must be given only after a very careful deliberation, or withheld altogether if there have been repeated and serious relapses.

Generally speaking, the contraction of a marriage may be allowed if at least five years have elapsed since the infection took place, if no more manifestations have occurred during the last two years, and if the patient has received an energetic and thorough treatment. To make assurance doubly sure, the principle has been introduced that the consummation of the marriage shall be preceded by a last mercurial treatment, the so-called 'safety-cure.'

It is impossible for the physician to give an absolute guarantee that no troubles will arise after marriage, seeing that syphilis presents a most variable clinical picture. But he is perfectly justified in expressing an opinion, on the basis of what medical science has ascertained by the work of centuries, whether the probability of a cure in a certain given case is so great that the patient may in common honesty get married. If unfavourable consequences appear nevertheless in the married life of the individual in question, they must be reckoned among the unfortunate accidents to which mankind is liable.

What has just been said is particularly applicable to those cases where the doctor does not know the history of his patient, but has to rely upon the statements of the latter in every detail. And if the maxim *Omnis syphiliticus mendax* is true as regards those patients who still manifest symptoms of the disease, how much more likely is it that those whose entire

future perhaps depends on the doctor's decision will so answer his questions as to influence him in the direction of giving the desired consent?

Syphilis gets introduced into the married union either through one or both of the partners entering matrimony with the disease in an active stage, or through one of them acquiring it extra-conjugally, either by sexual intercourse or by some unfortunate accidental infection. The latter alternative happens, for instance, through the children, who, having in some way or other become infected with syphilis, transmit the disease to their parents. Every individual thus infected is a source of danger to the other healthy members of his family, and the circumstance that syphilis often remains unrecognised for a long time, and therefore untreated, makes the danger particularly great. In consequence of the omission of the necessary precautionary measures the patient is unknowingly a focus of infection of the worst kind, so that the occurrence of the disease among several members of a family, and even regular house endemics, are by no means rare events.

Where a married person is suffering from syphilis he or she must, besides undergoing the necessary treatment, take every precaution to prevent the infection of the other partner. Sexual intercourse must be discontinued during the period of the infective stage of the disease, and it must not be resumed without the consent of the attending physician. All direct contact, such as kissing or sleeping with other persons, must be avoided, and all drinking-vessels and other domestic objects intended for the personal use of the patient must not be used by anyone else. Although the danger of infection is not very great during the period when there are no manifest symptoms, it is, nevertheless, possible for the most trifling injury, which is even unknown to its bearer, to effect a transmission under favourable circumstances. If at all practicable, the children of parents of whom one or both suffer from syphilis should be removed from the house.

In addition to the danger of infecting the members of the family who have hitherto been healthy, syphilis as such can influence married life most disastrously. Apart from the material damage caused by the expense of the treatment, and by the more or less pronounced deterioration in the earning capacity of the patient, the psychical factors are alone sufficient to disturb the happiness of a married couple. The consciousness of the syphilitic partner that he suffers from syphilis, especially if he has brought the disease upon himself through his own fault, is an element of the greatest injury to the married life, even though the existence of the disease should remain the sufferer's secret. And the feeling of remorse is considerably greater if the other partner suspects or has positive knowledge of the true state of things. Very often this is the commencement of a permanent estrangement between husband and wife, or even of an eventual dissolution of the marriage. Added to all this there are the personal dangers to which every syphilitic is at all times liable on account of the incalculable character of the course of the disease. It is true that in the majority of cases the secondary stage takes a favourable course, and does not materially affect the general health if the treatment is properly carried out and the constitution of the patient is satisfactory. Most syphilitics, in fact, are able by taking the necessary precautions to follow their employment. Nevertheless, there are exceptions to this. In the first place, other constitutional diseases, especially tuberculosis, may influence unfavourably the course of syphilis, and *vice versâ* these disorders may be aggravated by a complication with syphilis. But syphilis in itself is subject to many fluctuations, and women particularly suffer sometimes severely from nervous phenomena, which can become so acute as to keep the patient bedfast for a time. Worse still, there are cases of malignant or 'galloping' syphilis, from which the patient very often emerges with his health permanently shattered.

But the greatest reason why syphilis is a peculiarly dis-

astrous disease is because it is liable at any moment to break out in the form of what are called 'tertiary' phenomena. So long as these are confined to the outer skin the danger to the general health is not very great, as they are easily conquered by appropriate treatment. It is when internal organs, and especially the central nervous system, become the seat of the disease that irreparable injuries are apt to arise. As an example of many such cases, let me quote here one from my own personal experience: A married man, living happily with his wife and occupying a good social position, was so unfortunate as to acquire syphilis quite innocently and in a manner unconnected with sexual intercourse. In the third year after the infection he suffered from an apoplectic seizure, and as he had not told his family doctor anything about his syphilis, the latter did not apply the required treatment. The consequence was that a permanent paralysis ensued, and the family, who had no other resources but a small pension, was thrown from comparative affluence into the most abject poverty.

Energetic treatment during the infectious stage is the safest protection against subsequent tertiary syphilis; but if we bear in mind how difficult it often is to properly treat married syphilitics on account of the secrecy which they are anxious to observe, we can at once understand how it is that so many of them do not escape the tertiary stage of the disease, but fall a prey to it sooner or later. That the danger of infection for othe ther members of the family is also considerably greater in these secret cases is evident. In married women syphilis is often neglected because it is not recognised, and treatment is instituted only when the disease has assumed a serious character. For this reason more women than men suffer from tertiary syphilis.

Another reason why syphilis is, as a rule, more severe in married people than in young unmarried individuals is because the former acquire it at a more advanced age. We know from experience that in older people syphilis is generally

grave, and that it occasions at times dangerous symptoms on the part of the brain and spinal cord.

There are, besides, a number of diseases, such as tabes and general paralysis of the insane, which many medical men regard as late consequences or manifestations of syphilis ; and although it cannot be said that this opinion is general, the probability is that many diseased processes with the nature of which we are but imperfectly acquainted at present will at some future time be shown to represent syphilitic phenomena.

Fortunately, a large number of properly treated syphilitics escape all these later dangers by which they are always threatened, so that after a bitter experience of physical, and often also of moral, sufferings they again enjoy an undisturbed family happiness.

Nevertheless, statistics of life-insurance companies show as regards insured syphilitics a higher mortality figure, a fact of the highest importance when looked at from the standpoint of marriage. One such company has calculated that about 15 per cent. of all its deaths are due to syphilis, and the average age of former syphilitics works out at 43·4 years only. The average duration between infection and death was found to amount to 20·2 years. Although it is not usual for insurance companies to reject the proposals of former syphilitics altogether, they impose certain conditions, the stringency of which varies.

Syphilis and the Offspring.

One of the greatest dangers of syphilis in the married state is the transmissibility of the disease to the offspring. The transmission can take place in various ways :

1. Through direct infection of the children by one of the two parents who has acquired the disease in the course of the married life.

2. Through the transmission of the disease by the act of

generation, or through placental conveyance during pregnancy, if the mother is infected.

3. Through the infection of the child during the labour process, if the mother became infected in the last months of the pregnancy.

Ad 1. There is not much to say with respect to this form of infection, except that the children who thus become infected are in their turn apt to infect their brothers and sisters or servants and other persons, so that infections of entire households are by no means rare occurrences. Some parents, moreover, naturally like to keep their illness and that of their children secret. In this way the necessary precautions and treatment are neglected, and the consequence is that tertiary symptoms may make their appearance in these children many years later, when they are attributed to inherited instead of contracted syphilis.

Ad 2. This is the inherited form of syphilis. It differs from the direct infection above all by the absence of a primary lesion, otherwise it presents the same phenomena as that acquired through contagion. Hereditary syphilis does not present that hereditary transmission in the strictest sense the characteristics of which have been discussed in another article of this book, but a genuine infection. For hereditarily syphilitic individuals are in their turn capable of infecting others, whereas real inherited qualities, such as mental abilities, resemblances, etc., can be further transmitted by those who inherited them to their own offspring only.

The manner in which the transmission of this inherited syphilis takes place is not exactly known, but we do know that it can proceed either from the father or from the mother, or from both parents together.

Paternal or spermatic infection cannot be said to be demonstrable in very numerous cases, as it is not always easy to tell whether the infection did not proceed from the mother, who became infected before conception took place. In con-

nection with this means of infection an interesting observation has been made, which is known by the name of Colles's law. According to this law, the mothers of children who have inherited syphilis from their fathers are immune against syphilis, even though they do not manifest any signs of syphilis. Such a mother can suckle her syphilitic child without fear of becoming infected, while the same child is capable of infecting other non-syphilitic persons—for instance, its wet-nurse. This is not the place to enter into the theory how this immunity is brought about: the fact remains that it is frequently observed. The suggestion that it is a mitigated form of syphilis receives some confirmation from the rare observations that syphilitic fœtuses do occasionally infect their healthy mothers while yet in their intra-uterine existence, a process which goes by the French name *choc en retour*.

Ad 3. The infection proceeding from the mother of an hereditarily syphilitic child may have had its seat of origin in the maternal ovum or in the maternal placenta. But whereas the possibility of an ovular infection is merely a matter of conjecture and analogy by comparison with the spermatic form of infection proceeding from the father, the passage of the syphilitic poison by way of the placenta from mother to child is an absolutely established fact. Numerous cases are known in which both parents were healthy at the period of conception, and in which the mother became infected with syphilis in some way or other during the pregnancy, bringing into the world a syphilitic child. Generally speaking, this placental infection takes place in such cases only if the infection of the mother occurs not later than the seventh month of the pregnancy, while if the mother becomes infected later the child is, as a rule, born healthy. Placental infection does not occur invariably in the children whose mothers got infected with syphilis during the first months of the pregnancy. Some of them escape, and it would even appear from experiments on animals in connection with other infectious

diseases that a placental conveyance of the syphilitic poison from mother to child takes place only if the placenta itself is the seat of some morbid process.

As regards the children of syphilitic mothers who were already infected at the time of conception, they run a double risk ; for if by some accident they escape an ovular infection, they are still liable to fall a prey subsequently to a placental infection.

Where both parents are syphilitically diseased the chances for the embryo are worse still, as it has to run the gauntlet of three possibilities of infection—namely, through the spermatic fluid, through the maternal ovulum, and through the placental circulation.

Whether hereditary syphilitics can transmit the disease to their descendants has not hitherto been demonstrated with certainty.

It is equally uncertain whether children of syphilitic parents who have escaped hereditary infection are immune against syphilis, and if such an immunity does exist it is of limited duration only. It appears to become extinct during puberty, as infections in such children have repeatedly been observed. It has also been proved that hereditarily syphilitic children can, like adult syphilitics, become reinfected after a time, although not many cases of the kind have been reported.

A certain relative immunity in the offspring of syphilitics may be concluded from the observation, which has often been made, that syphilis takes a more favourable course in countries in which it is endemic, whilst if introduced into places which have been formerly free from it, the results first produced are of a most ravaging nature. It is further supposed that in sporadically occurring cases of malignant syphilis the ascendants have for several generations been quite free from syphilis.

The influence of parental syphilis manifests itself in the offspring in different ways, according to the duration of the

disease in one or both of the parents, according to the sex of the procreator, and according to the treatment carried out. The more recent the syphilis of the transmitting parent, the more easily and frequently the transmission to the embryo takes place, and the severer the form of the disease produced in it. It does not matter whether at the time of conception there are manifest symptoms in the transmitting parent or not. Nor is the disease transmitted in every recent case of syphilis, although this happens in the majority of cases. Sometimes parents thus situated, even if they present manifest signs of syphilis, bring into the world healthy children, and sometimes healthy children alternate with syphilitic children. It is impossible to tell beforehand how long the period of hereditary transmissibility will last, just as it is impossible to foretell the duration of the infective stage altogether. All that we can say is that the further the parental disease is removed from the term of the possible infection, the better the prospects of a healthy embryo coming into the world.

As a rule, the capacity for hereditary transmission becomes extinct in the father sooner than in the mother; the latter often remains capable of transmitting syphilis to the offspring for ten years, or even longer, from the date of her illness. It is possible that this is due to the circumstance that many syphilitic women do not undergo a sufficiently thorough treatment.

It is this latter factor—namely, suitable and energetic treatment—which is of the highest importance in the question of hereditary transmission.

The more thoroughly a syphilitic is treated and the earlier the poison is removed from his body, the sooner he loses his capacity of transmitting his disease to his offspring. It is a well-known and often observed fact that parents who have for years brought forth one syphilitic child after another suddenly commence, after a radical mercurial cure, to generate perfectly healthy children, and that as soon as the treatment

is interrupted syphilitic children are again born to them. For this reason it is usual to subject ex-syphilitic candidates for marriage to a mercurial treatment shortly before the wedding, in order to make sure that they do not transmit syphilis to their offspring.

The result of parental syphilis—as far as the offspring are concerned—is at first miscarriages; after that comes the birth of premature, non-viable children; then follow dead full-term children; later on children are born who show already at birth, or a few weeks afterwards, the well-marked signs of hereditary syphilis; gradually children appear who look healthy, but are nevertheless feeble and predisposed to constitutional diseases; and finally healthy children are born. This is, as a rule, the course of events in syphilitic marriages, but, like every other rule, it has its exceptions, and there may be variations in the order enumerated.

In a number of individuals whose parents were syphilitic the inherited disease does not become manifest until puberty, or even later still. This form is designated as 'late inherited syphilis,' although it is possible that in some of these cases the disease was not inherited, but that an infection took place during childhood which passed unrecognised and untreated.

That the advent of a syphilitic child in a family is one of the most unfortunate occurrences which can happen in connection with the married state goes without saying. Apart from the moral anguish experienced by the guilty parent who is thus reminded of an illness long since considered cured and done with; apart from the fear that the well-kept secret will leak out after all, there is the unpleasant, serious duty which confronts the physician in attendance. He must see that the healthy inmates do not become infected by the syphilitic infant, and he must institute the necessary treatment without revealing the secret of the syphilitic parent.

It is in the first place essential that the syphilitic child should not be suckled by a wet-nurse, unless, perhaps, she is also syphilitic. The infant must be fed either by the mother—

who is, in virtue of Colles's law mentioned above, nearly always immune against syphilitic infection by her child—or it must be brought up by hand. This precaution should be adopted also where there are healthy-born children of manifestly syphilitic parents, because sometimes the syphilis of newly born children does not make its appearance before the lapse of two to three weeks from the birth, and an infection of the wet-nurse might take place in the meantime. The suitable nutrition of the diseased suckling must be accompanied by the appropriate antisyphilitic treatment, and not infrequently one is happy to see such children overcome successfully all the dangers of their parental heritage.

An important point in connection with this subject is the risk which medical men and midwives incur when assisting at the labour of women suffering from manifest syphilis of the genital organs, as they are liable to become syphilitically infected. It should therefore be a legal obligation for parents who are aware of their syphilitic condition to warn all those who take part at the confinement—that is, doctor, midwife, and nurse—to protect themselves against a possible infection.*

* The question of the prevention of sexual diseases has been treated in the preceding article, and what has been said with regard to gonorrhœa applies also to syphilis.—Translator.

XVI.

DISEASES OF THE SKIN IN RELATION TO MARRIAGE.

By R. LEDERMANN, M.D. (Berlin).

Diseases of the skin, when considered from the standpoint of marriage and the married state, possess, besides their medical and sanitary features, additional importance in the circumstance that they also present cosmetic characteristics. Many skin affections, especially if they are situated in uncovered regions of the body, appear to the lay public not only as diseases, but also as physical defects, and can in this way influence unfavourably a projected marriage. In such cases the doctor is often able to intervene beneficially, and, by curing the existing evil, remove the obstacle, if his advice is sought at a sufficiently early date. On the other hand, there are skin diseases which the layman is apt to regard as harmless, but which the experienced eye of the physician recognises as the premonitory signs of some serious illness, and as sufficient to render marriage inexpedient. From this may be gathered that the opinion of a doctor in cases of morbid conditions of the skin is of the utmost value to the parties contemplating matrimony. In the case of individuals who are already married, the question arises how skin diseases influence their married life, and, again, what effect married life has upon the course of skin diseases. In infectious cases of skin disease there is also to be considered the protection of the people living in close proximity to the patient—in the first instance, that of the other married partner and of the children.

Leprosy.

Leprosy, which is still very prevalent in some non-European countries—for instance, in India, China, Mexico, and the Sandwich Islands—is seen in Europe in a few isolated places only. Norway, Spain, Bosnia, and South Italy still form solitary, and to a great extent disappearing, centres. Only in Russia a further spread of the disease has, within the last few decades, been observed to proceed from Livonia towards the interior of the country, so that a certain amount of danger was threatening Germany from that quarter, a danger which may be said to have been averted by the precautions taken by the Government.

Now that, in consequence of the discovery of the lepra bacillus, the contagious character of the disease is undoubtedly established, the question of the relationship between leprosy and marriage has acquired quite an especial importance. Although we do not know with certainty the manner in which the lepra poison enters the system, we know for a fact that contagion from person to person does take place, and it appears that the greatest danger emanates from those who suffer from suppurating nodules of the skin or from the pulmonary form of lepra, in which large masses of bacteria get coughed up, to be afterwards scattered among the people in the immediate neighbourhood. Fortunately, a large number of people are immune against leprosy in virtue of their lacking the predisposition to the receptiveness of the poison, so that, notwithstanding close cohabitation with leprous individuals, extending over many years, it very often happens that husbands, wives, and other relatives, even if occupying the same beds as the patients, remain healthy. Nevertheless, the danger that healthy members of the future family will be attacked by the disease is sufficiently great to warrant the conclusion that patients in whom leprosy has been established must be dissuaded most emphatically from getting married.

Whether any practical results could be obtained by legal enactments prohibiting marriage between leprous and healthy persons, as suggested by a few authors, would appear, from the experiences collected so far, to be rather doubtful. An attempt in that direction which was made in a small Russian district proved futile. All the priests in Terek were enjoined to prohibit the marriage of those whose parents or grandparents had suffered from leprosy, but the forging of certificates, irregular marriages, and other similar evils, became so rampant that the edict prohibiting the marriages had to be revoked.

Whether leprosy is hereditary or not cannot be answered with certainty one way or the other; a few reported cases seem to favour the view that it is. Practically the point is not of great importance, but if the marriage of leprous individuals is to be opposed on account of the offspring, the danger lies more in the direct infection from parents to children than in the hereditary transmissibility of the disease.

If one of the members of a family is attacked by leprosy, a strict separation of the patient from those around him is imperative. As long as this separation can be carried out at the patient's residence there is no necessity to remove him to a special institution for leprous sufferers; but where there is reason to believe that precautionary measures are neglected, and that the other members of the family are imperilled, such a removal is not only justified, but essential, otherwise there is a risk that the disease may spread in the whole of the respective locality. If leprosy attacks either a husband or a wife at a time when the children are still young, the latter should be taken away from the house as soon as possible, and placed under conditions which preclude the possibility of infection. There would even be no exaggeration in the demand that such children be reared and observed in some public institution for a number of years, since, considering the incubation period of the disease, it is possible for them to

harbour its virus for many years before any symptoms make themselves manifest.

If one of the children of an otherwise healthy family is attacked by leprosy, it must be immediately separated from its brothers and sisters, as the disease appears to pass more easily between brothers and sisters than between husband and wife. The reason lies possibly in the circumstance that brothers and sisters, being consanguineously related, are far more often of an equal constitution and predisposed to the same diseases than husbands and wives.

Since leprosy is absolutely unamenable to treatment, it cannot be too strongly emphasized that the only way to prevent its terrible results is to make its spread by contagion impossible. This can only be done by the strictest attention to the precautions indicated above.

Tuberculosis of the Skin.

Lupus Vulgaris.—Lupus vulgaris is a disease with a very chronic course which begins as a rule during childhood, though it may make its appearance at any time of life. A first commencement of it at a marriageable age, or in married persons, is therefore at any rate rare. As a family disease lupus does not play a great part, since no cases of hereditary affection or direct contagion have become known. In brothers and sisters lupus is seen only exceptionally, but very often children with lupus are descended from tuberculous individuals who have not themselves suffered from lupus. That other forms of tuberculosis are capable of producing an infection with lupus is also shown by numerous cases of the latter illness caused by the transmission of tuberculous material from a skin affected with some other tuberculous disease than lupus.

We may therefore conclude that tuberculosis in the parents imparts to their children a certain predisposition for lupus—in other words, for the reception of tubercle bacilli in the

skin. On the other hand, it is not proved whether patients affected with tuberculosis of the internal organs are in any way predisposed to lupus. What happens more frequently is the other way about—patients suffering from lupus are attacked later by other tuberculous diseases. But what we do know with certainty is that scrofula plays a considerable rôle in the history of sufferers from lupus, seeing that a scrofulous condition offers in all respects a suitable soil for the development of cutaneous tuberculosis.

The importance of lupus to marriage and the married state lies in its possible mode of origin—namely, inoculation—which is attested by so many clinical facts and observations that there can hardly be any doubt as to its occurrence. The answer to the question whether a patient with lupus may marry or not depends, therefore, upon the stage of the disease, and upon whether an infection by inoculation may proceed from him or her. If a careful examination reveals no signs whatever of a tuberculous or any other disease, if the period of the acute stage of lupus has long since passed, if the patient has neither tuberculous habit of body nor a family history of tuberculosis, and if there is no evidence of scrofula, there is the less need to withhold the consent to the contemplated marriage, as experience teaches that the regular mode of life and the better conditions of nutrition resulting from the married state are productive of better health and often of a higher life-duration than the unmarried state. Where there are deformities due to lupus scars on the eyelids, round the mouth, or at the nasal opening, the surgeon's knife can often effect great improvements, and thus remove æsthetic objections to a projected marriage. But where the scars still contain hidden remains of lupus, or where the disease is as yet in an active stage, the matter is totally different. Here the risk of infection as an obstacle to marriage, although it cannot be dismissed altogether, is, as we have seen above, not very great; but there are other dangerous factors which deserve the greatest amount of consideration.

In cases of rather extensive and acute lupus, in which the disease is spread over large surfaces of skin, or where mucous membranes are affected, and finally where more or less severe destruction of the skin has produced prominent disfigurements, the question of marriage is hardly likely to arise. Most lupus patients, the great majority of whom belong to the poorer classes, are not in such favourable pecuniary circumstances as to be in a position to establish a household. Though many of them are perfectly able to work, they cannot find anybody to give them employment, and they are shunned by all on account of their repulsive appearance. Should, however, the question of marriageableness from a medical point of view happen to arise in such a case, nevertheless, the doctor would have no alternative but to decide the same in a negative sense. A lupus patient whose illness has perhaps, in spite of medical treatment, assumed the proportions indicated above has only very rarely a chance of being cured of the same permanently. On the contrary, he is always threatened by a number of dangers which medical skill cannot possibly avert. Such patients are always running the risk of being attacked by other forms of tuberculosis, and in point of fact the greatest number of lupus patients succumb finally to pulmonary tuberculosis. In many instances the skin in lupus becomes the seat of other serious acute and chronic diseases, such as erysipelas and cancer. All these possibilities are sufficient reasons to impose upon the physician the duty to refuse his consent to the marriage of individuals with severe lupus.

But where the disease is localized in a small area, and the patient is otherwise free from tuberculosis, there is less occasion for apprehension, especially if the process has been a slow one. To individuals thus situated the best advice that can be given is to see that their lupus is cured before they get married, as small patches frequently become the starting-point of fresh developments of the disease. Unfortunately, a cure cannot be obtained in every case, but where this is done the

physician may without fear give the consent to the marriage for which he is asked.

Upon the course of married life lupus has no particular influence, as we have already seen that the disease appears rarely in married persons, and that it is seldom communicated by one person to another. Nor does married life appear to have an injurious effect upon the course of lupus, especially as lupus patients enjoy as a rule, for long periods of their lives, otherwise unexceptionable health. Of course, intercurrent and debilitating diseases may influence lupus unfavourably, as they can every form of tuberculosis. This may be said especially with regard to severe pregnancies and labours.

Finally, as regards the offspring of lupus patients, experience teaches that such children are, as a rule, born healthy, and that they can remain healthy for the rest of their lives. The probability is very small indeed that lupus can be transmitted to the offspring either hereditarily or through infection.

What has been said with respect to lupus applies also to the other forms of skin tuberculosis—namely, the tuberculosis verrucosa, scrophuloderma, lichen scrophulosorum, and tuberculides. Where the tuberculous ulcers are open and discharging, precaution must be taken by careful bandaging to prevent the spread of the tubercle bacilli in other parts of the patient's body or among his healthy cohabitants. Scrophuloderma supervening on scrofulous glands offers a worse prognosis than if developing primarily, and seeing that a cure is very rarely obtained, the question of marriageableness in individuals thus affected should on principle be answered in the negative. The other tuberculous affections of the skin are usually manifestations of general tuberculosis, and the consent to the marriage of persons suffering from them must necessarily depend upon the stage of the primary disease.

Rhinoscleroma.

Although rhinoscleroma is now generally believed to be due to the invasion of a specific bacillus, it does not present very great dangers on account of its communicability, but it is important as a marriage obstacle on the ground of its incurability. If the disease appears in people already married, it does not affect them very much, as they can very often continue their employment unhindered for many years, the progress of the illness being generally a very slow one.

Psoriasis.

With reference to psoriasis in regard to marriage and the married state, we may say that if the risk of contagion between husband and wife is not very great, the danger that the children of parents suffering from psoriasis will also be subject to it is by no means insignificant, as the disease has frequently been observed among several brothers and sisters of the same family. Still, the matter is not sufficiently serious to permit the conclusion that persons with psoriasis who are otherwise in good health ought not to marry. Besides, psoriasis is in most cases amenable to successful treatment, with the exception of a malignant form, the so-called dermatitis exfoliativa universalis, which must therefore be regarded as a true obstacle to marriage. Psoriasis does not appear to be in any way influenced by pregnancy or labour.

Excessive Blushing (*Erythema pudoris*).

This is a form of erythema seen in persons whose central nervous system is not very stable, and it is apt to cause very great inconvenience. Appearing outwardly in the form of shyness, the affection can gradually, owing to the constant fear that blushing may occur at any moment, almost assume the character of a mental disease. Young men, including many sexual neurasthenics who are matrimonially inclined,

cannot often sum up sufficient courage to declare themselves, thus losing the chance to get rid of their complaint, as during the married state, with its regulated sexual conditions, the uncomfortable affection, as a rule, disappears.

Elephantiasis.

Elephantiasis nostras of the genitals is sometimes, but not very often, so severe as to make sexual intercourse impossible. In women it may also constitute a serious obstacle at the labour. In elephantiasis arabum this is much more likely to be the case, and the impossibility to gratify the sexual desire often causes the patients the greatest torments. As long as copulation is possible, the procreation is not impaired. Of one patient it has been reported that he begat two children notwithstanding a scrotum weighing 110 pounds.

In unmarried individuals a high degree of elephantiasis is doubtless an obstacle to marriage, especially if the impotentia cœundi is complete.

Of elephantiasis in other parts of the body, it is sufficient to say that the condition seldom returns to a normal state, and that the decision as to marriageableness depends upon the primary cause, and also upon hygienic and æsthetic considerations.

Eczema.

Of eczema in relation to marriage there is not much to say. Not being often communicable from person to person, it does not constitute a point to be taken into consideration when the question of marriage arises. But chronic eczema may so disturb the general health as to affect the working ability of the patient, and thus influence injuriously the livelihood of the family. Eczema of the genital organs is sometimes very obstinate, and liable to necessitate the suspension of sexual intercourse. This is often the case in married women suffering from fluor albus.

Acne Vulgaris.

This affection, which occurs as a rule at an early age and seldom lasts beyond it, can, on account of its predilection for the face, and because of the scars which it occasionally leaves behind, form an objectionable element in a contemplated marriage for purely æsthetic reasons. In anæmic young women we often see the complaint aggravated during married life, when a state of general debility is produced by pregnancy or uterine troubles. In the majority of cases, however, the affection disappears in married persons of either sex, a circumstance due probably less to the regulated sexual relations of the married state than to the fact that in the middle of, and beyond, the twenties the disease vanishes altogether in most cases. That absolute chastity has something to do with the causation of acne, as maintained in some quarters, is easily disproved by everyday observation.

Other Skin Diseases.

The numerous other skin diseases, some of which are more or less rare, do not present any peculiar features from the standpoint of marriage and married life. Some, like favus, herpes tonsurans, etc., being known as contagious, dictate precautions intended for the purpose of preventing infection; others, like urticaria, ichthyosis, and so on, deserve a certain amount of attention for the reason that an element of heredity plays a part in their causation. Generally speaking, however, these skin diseases have no particular influence on the married state, nor can it be said that they are likely to be affected in their course by the circumstance that they occur in married people.

XVII.

DISEASES OF THE ORGANS OF LOCOMOTION IN RELATION TO MARRIAGE.

By PROFESSOR A. HOFFA (Berlin).

The diseases of the skeletal system are in so far of importance with regard to marriage and the married state as they are capable of giving rise to changes in the bones constituting the pelvis. These changes, if at all extensive, may form a complete obstacle to labour. Diseased conditions of the bones in other parts, too, may indirectly cause injury to the married state. Thus, extreme deformities of the thorax may produce increased pressure, and result in harm to the contents of the pelvis during pregnancy. It is also possible for these changes in the bones to form an obstacle to the exercise of conjugal intercourse, and thus to render a marriage sterile from purely mechanical causes.

Contracted Pelvis.

Not all women are built alike as far as the pelvis is concerned. In some it is narrower than in others, but as long as its size is within the limits of normality it presents no obstacle to labour. But when its dimensions are below those limits, we speak of a 'contracted pelvis,' and in that case more or less danger is to be apprehended during pregnancy and at the subsequent labour, the extent of the danger depending on the degree of contraction in the pelvis.

It is reckoned that about 20 per cent. of women have a

contracted pelvis. They are, as a rule, less fertile than normal women, a circumstance which is principally due to the fact that a woman with pronounced deformities of the bones does not readily find a husband, and has therefore fewer chances to become pregnant. Severe injuries received in previous difficult labours may also render further cohabitation and conception impossible.

If women with contracted pelvis give birth to more boys than girls, this is due more to the fact that they marry, as a rule, late in life than directly to the pelvic anomaly.

The influence which a contracted pelvis has upon pregnancy is particularly great during the last months. Owing to the narrowness of the pelvis the pregnant uterus can find no room in it, and it becomes in consequence very movable and tilted forward, so that the condition often develops which is called 'pendulous abdomen.' Upon the position and attitude of the child, too, contracted pelvis has a considerable effect, and it is well known that abnormal presentations are more numerous in women with contracted pelvis.

When the labour stage is reached the process is often protracted, and a much greater strain is required to bring it to a conclusion. The accompanying over-exertion is calculated to endanger mother and child. There is generally a decline in the labour pains; the membranes may rupture prematurely, and thus cause further delay. Bruises and injuries to the soft parts may be caused, and these may in their turn give rise to other serious complications, including puerperal fever. If the degree of contraction is so severe as to necessitate an operation, there are other dangers which threaten the mother's life, and it is even stated by some that eclampsia is frequent in cases of contracted pelvis.

As regards the child, the protracted labour alone may be sufficient to endanger its life, or it may during its passage out be killed by a cerebral hæmorrhage. Pressure marks and swellings more or less serious are apt to result, as well as fractures and depressions in the cranial bones. Injuries to

the extremities and other parts of the body occur very often indeed, and are frequently followed by paralysis.

The second confinement in a woman with contracted pelvis is generally more favourable than the first, owing to the stretching of the soft parts, but the third and subsequent labours are again very unfavourable, as the head of the child becomes larger and harder, and the pains more and more weak and insufficient.

The primary cause which produces the changes in the bones leading to 'contracted pelvis' is most frequently rickets, a disease which, as is well known, attacks children in their first or second year, when the infantile pelvis consists as yet of separate osseous portions attached to one another by cartilaginous substance. If the rickets is of a mild character the changes produced are only slight, but if severe, alterations in the shape of the pelvis take place which may end in reducing its diameters so considerably that if pregnancy occurs in later years no other course remains but to perform Cæsarian section. Besides reducing its diameters, rickets produces also other changes in the pelvis which help to aggravate the prospects for the future.

Osteomalacia.

Osteomalacia—or mollities ossium—is, properly speaking, a puerperal disease, although many cases are reported as having occurred in girls and men. The disease consists of a softening of the osseous substance due to a dissolution of the lime-salts contained in bone, and it may cause most acute changes in the skeleton. In some of the worst cases the bones have been found to represent membranous sacs filled with bone-marrow. The starting-point of osteomalacia differs according to the form of the disease. In puerperal osteomalacia the first part attacked is almost invariably the pelvis, whilst in the non-puerperal form it is the vertebral column and the thorax, leaving the pelvic bones intact. There are,

however, exceptions. The course of the disease is in both forms alike; occasionally it remains stationary, and at other times it spreads over the entire skeleton.

As to the cause of origin of osteomalacia, we are not in a position to say anything definite. By some it is attributed to damp and unhealthy dwelling-places, by others to geographical considerations, and others, again, are in favour of a bacterial origin. What is certain is that it occurs most frequently in women who have already borne children, and at an age between thirty and thirty-five. The oldest woman known in medical literature as having been attacked by osteomalacia was fifty-two, and the youngest thirteen.

The illness begins in an insidious manner, and is often mistaken for 'rheumatic pains' in the affected bones. After a time it affects not only the joints, but also the muscles, which are apt to undergo wasting and contractions. It is generally the lower extremities and the lower part of the thorax which suffer, whereas the head and upper extremities are but rarely attacked, these constituting most extreme cases.

Although it is possible for osteomalacia to heal up spontaneously, it is liable to recur during subsequent pregnancies, or to commence a progressive course at the end of the first pregnancy. The prognosis is therefore very serious, and young women who have already gone through the non-puerperal form of osteomalacia should on no account be allowed to marry.

Osteomalacia may exercise a prejudicial influence on marriage and the married state in different ways. There is first of all the possibility that it may create a mechanical obstruction to the act of copulation. Then there is the probability that an eventual labour will necessitate the performance of Cæsarian section, a prospect not altogether bright, notwithstanding the fact that that operation presents for both mother and child the best chances possible under the circumstances.

Lateral Curvature of the Spine (*Scoliosis*).

With regard to lateral curvature of the spine we have to bear in mind first of all the fact that inherited scoliosis is by no means rare, and that heredity is consequently an important factor in its causation. My own statistics show that heredity is present in 27·5 per cent. of the cases, and others have recorded a similar observation. The disease may be inherited from the father as well as from the mother. Often the affection lasts through several generations. I have seen in my own practice grandmother, mother, and daughter affected with it. Sometimes the parents are quite healthy and the disease is present in near relatives, such as uncle and aunt. Occasionally all the children of a scoliotic mother become equally scoliotic. Parents with other forms of curvature of the spine may bring forth children afflicted with, or prone to, scoliosis. Or the children may be born with a laxity and weakness of the constituent parts of the spinal column, which easily degenerate into curvatures under the influence of secondary causes.

An important feature of scoliosis is its possible connection with tuberculosis. Many medical writers think that such a connection does exist—namely, that scoliosis favours the advent of tuberculosis. My own view, which is supported by thousands of observations, is that pulmonary tuberculosis is exceedingly rare in young scoliotic individuals, and that scoliosis in itself does not form a predisposition to pul monary tuberculosis. I am in a position to follow up the history of my scoliotic patients for many years back, and cannot remember a single case of death from pulmonary tuberculosis. That there are among scoliotic persons many with tuberculosis is only natural, seeing how prevalent tuberculosis is. I do not think, therefore, that it is necessary to prohibit a marriage on account of the possibility that pulmonary tuberculosis will supervene in a scoliotic patient.

Regarding the question whether scoliotic girls may marry,

in view of the circumstance that the deformity in the spinal column is likely to produce an injurious effect upon the pelvis, and subsequently upon the course of an eventual pregnancy and labour, the answer should, generally speaking, be in the affirmative. I have seen a large number of my scoliotic patients marry in spite of a very pronounced lateral curvature of the spine, and give birth without any trouble to healthy children who grew up quite straight. Nevertheless, each case must be judged individually, and particular attention must be paid to the general state of health of the patient, as well as to the nature, seat, and degree of the curvature.

A word remains to be said on the possible effects of pregnancy and childbirth on an existing curvature of the spine. That these events may seriously aggravate scoliotic conditions I have frequently had occasion to satisfy myself. This is not always seen immediately after the confinement, but some months later, when the patient is already going about. I have found that suitable apparatuses may be devised in each case, which can save a great deal of trouble, and also act preventively for the future.

Spondylitis.

Through spondylitis, or caries of the vertebræ, changes may take place in the spinal column and in the pelvis which modify considerably the configuration of the latter. If the question of marriage arises in connection with spondylitis, the answer depends on whether the process has become healed or not. If the latter is the case, marriage is not permissible, since, like in all tuberculous affections, untoward complications may supervene during pregnancy. But if the spondylitis has healed up and the contraction of the pelvis is not considerable, there is no ground for objecting to the marriage. In strongly marked pelvic contraction the prognosis of eventual labours is unfavourable as regards both mother and child, unless Cæsarian section is performed.

Congenital Dislocations of the Hip.

The principal reason why congenital dislocations of the hip-joint are of importance from the point of view of marriage is that hereditary transmission plays an undoubted part in its causation. As a matter of fact these congenital dislocations occur very frequently among members of the same families. One writer has reported particulars of 100 cases, out of which no less than 40 children could show at least one other case among their relatives. Either the father or the mother was affected with a similar dislocation, or else the abnormality was present among the blood relations of the father or of the mother, and sometimes of both parents. The dislocation may be inherited just as easily by the male as by the female line. It is even possible to formulate regular 'genealogical trees' of such 'dislocation families.' But, on the other hand, it is absolutely impossible to predict whether in a given case a mother with a dislocation will bring forth similarly afflicted or normal children. Many of my patients with dislocation, some even with double dislocation, have married and given birth to perfectly normal children, so that I should never refuse my consent to a marriage because of a possible hereditary transmission. Besides, congenital dislocation of the hip is at the present day a complaint which is curable in the majority of cases, and which need not, therefore, be regarded with any dread.

Nor is the possibility that disturbances may arise at a subsequent childbirth a general reason for refusing the consent to a marriage in one-sided or even in double-sided dislocations of the hip. It is true that owing to the deformity changes take place in the appearance and form of the pelvis, but they are not of such a kind as to interfere seriously with the process of pregnancy. Exceptions, of course, occur, and they are not even very rare, when more or less grave complications result, ending, perhaps, with premature expulsion of the fœtus or severe injuries to mother and child.

The labour, too, runs as a rule a normal course, and it even appears that in some of these cases the confinements are particularly easy and rapid. Occasionally artificial assistance is required, but not, on the whole, oftener than under normal circumstances.

It is advisable to recommend pregnant women who suffer from such dislocations to abstain from walking about too much, so as not to run the risk of injuring themselves or their future child. Where on account of the dislocation the thighs cannot properly be separated, operative measures are indicated with a view to enabling the legs to assume a more natural position, and I have by such operations made it possible for quite a number of girls to get married.

Hip Disease.

Whether females who have at an earlier age suffered from disease of the hip-joint may marry or not depends upon the nature of the former illness, and upon whether the process has run its course and become healed up, leaving behind deformities and contractures more or less severe. In my opinion the consent to the marriage may generally be given where the disease has lost its active character, especially if it developed on a non-tuberculous basis. I know quite a number of women who, notwithstanding a diseased hip-joint of a pronounced type, and in spite of a by no means inconsiderable contracture, with the leg in an abnormal position, have given birth without much difficulty to one or more healthy children. Sometimes, of course, artificial assistance at the confinement becomes necessary, just the same as in normal cases. The false position of the leg which is the most prominent feature in these cases, and which causes parents to shrink from allowing their daughters so deformed to marry, is not usually so intense as to make sexual cohabitation altogether impossible, especially as the abnormality can as a rule be rectified by a surgical operation. That patients with such deformities are

particularly given to perverse gratification of the sexual desire does not agree with my experience; on the contrary, they take a special pride in being able to prove to their husbands that in spite of their deformity they are yet capable of performing their duty and of becoming happy mothers.

What has been said with reference to hip disease applies also to those cases where patients have not had the use of one leg, either permanently or at any rate for some time, owing to an affection of the knee-joint, infantile paralysis, or the amputation of an extremity. In extreme cases, however, Cæsarian section may become necessary to bring an eventual pregnancy to a conclusion.*

* Some remarks on the rarer affections of the organs of locomotion, and particularly of the pelvis in relation to marriage, will be found in the larger manual. Here it is sufficient to mention that chronic articular rheumatism acquired in early years occasionally so impairs the free movements of the extremities that marriage must remain out of the question.—TRANSLATOR.

XVIII.

DISEASES OF THE EYE IN RELATION TO MARRIAGE, WITH ESPECIAL REGARD TO HEREDITY.

By G. ABELSDORFF, M.D. (Berlin).

The relations between eye diseases and the married state are of various kinds. There is first the possibility of contagious eye diseases being transmitted from husband to wife and *vice versâ* if the laws of hygiene and all precautionary measures are disregarded. Then there is the effect which pregnancy and childbirth may exercise upon the eye, principally in the form of retinitis albuminurica gravidarum, an affection which may produce complete blindness. Where the eyesight has already suffered there is a tendency for the retinitis to recur with repeated pregnancies, a circumstance justifying the adoption of measures calculated to prevent conception.

Severe hæmorrhage in miscarriages and ordinary confinements is also prejudicial as far as the eye is concerned, and often there occurs during the puerperium and lactation an optic neuritis which, though as a rule favourable in its course, nevertheless necessitates the weaning of the child.

The eyes of the new-born child, too, are liable to be endangered by the labour process, either through infection or injury. The secretions from the maternal genitals which come in contact with the eyelids of the child may, when the latter opens its eyes, infect the conjunctiva with micro-organisms. Of these micro-organisms the most dangerous is

the gonococcus, because the gonorrhœal inflammation of the eyes of newly born children (blennorrhœa neonatorum) may, if not treated soon and energetically, lead to the destruction of the cornea. It is a lamentable fact that at least 10 per cent. of the blind have lost their eyesight in this way. But, on the other hand, it is necessary to state that not every inflammation of the eyes in newly born infants is of a gonorrhœal nature. Proofs are accumulating that bacteria of other infectious diseases also play an important part in this connection, although the inflammations which they produce do not affect the cornea.

Mention must also be made of the injuries which the eyes of newly born children are apt to receive through the operations rendered necessary by complications at the labour stage. Hæmorrhages often occur in the retina of such infants even after spontaneous labours, and this is perhaps the explanation of many cases of weak sight occurring at a later period of life, notwithstanding an apparently normal condition of the eyes (amblyopia congenita).

Finally, we must bear in mind the fact that heredity plays a great part in eye diseases, and that many affections of the eye are hereditarily transmitted from the parents to their offspring. Fortunately, however, the number of hereditary eye diseases likely to lead to incurable blindness is so small that in view of the proverbial blindness of love very few people indeed will be deterred from venturing upon matrimony because of a fear that their children might be affected with a weakness of the eyesight. The matter is nevertheless of sufficient importance to be given a place in this volume, and we shall therefore deal in this chapter with the most frequent hereditary eye diseases in so far as they relate to the subject of marriage and its results.

Colour, Form, and Refraction of the Eye.

It is well known to everybody that the colour of the eye—in other words, the consistence and quantity of the pigment

in the iris—is hereditary to such an extent that it constitutes a racial characteristic. Albinos, in whom the iris shows a reddish translucence on account of the absence of pigment, form an exception, as they do not generally transmit direct to their descendants this absence of pigment, which is accompanied by photophobia and usually also by diminished acuteness of vision; in their case the abnormality shows its nature as a family affection only by being present in several brothers or sisters.

The shape of the eye no less than its colour is influenced by heredity, and refraction in its turn is dependent upon the form of the eye. In a recent communication it is stated that in a number of children examined the refraction corresponded with that of the parents:

In hypermetropia in 69 per cent. of the cases.
In myopia in 65·7 per cent. of the cases.
In emmetropia in 48 per cent. of the cases.

As regards astigmatism, the amount of material at our disposal is not sufficient to allow us to draw any definite conclusions. Nor is it very easy to come to a decision as to whether myopia is hereditary, because it is so very frequent. Besides, myopia in new-born children is very rare; on the contrary, infants are almost all hypermetropic. But there appears to be an inherited disposition to myopia which is favoured by close work, and under the influence of such work the children of myopic parents are far more inclined to become myopic than the children of emmetropic or hypermetropic parents.

Cornea.

There is observed at times in eyeballs otherwise normally constituted a congenital opaqueness of both corneæ, either total or partial, which may, however, clear up again more or less in the course of time. It is not a condition which can be described as hereditary in the strict sense of the word, but

it shows itself as the result of a fœtal inflammation in several children of the same family, although no lesion can be detected in the parents.

Iris.

The iris may be absent to a greater or lesser extent (aniridia congenita, irideremia). This defect is present, as a rule, in both eyes. Apart from the striking appearance of the persons thus affected and the disturbance in the vision arising from the glare, there are frequently also other complications—for instance, weak sight, nystagmus, opacity of the lens, etc. The influence of heredity is in this anomaly particularly marked. Daughters as well as sons are liable to inherit the disease either from the father or from the mother.

Crystalline Lens.

Congenital Malposition of the Lens, which produces disordered vision, may be observed in several generations of the same families without distinction of sex.

Cataract, or opacity of the lens, which is the most frequent affection of this portion of the eye, may be congenital or acquired. Heredity is occasionally an element in either of these two forms. Father and mother can transmit the disease to their male as well as to their female descendants, though isolated members of the same generation, as a rule, escape.

Choroid.

Hereditary choroiditis—inflammation of the choroid—with the exception of that arising on a syphilitic basis, is very rare, if it occurs at all. The same thing may be said with reference to hereditary malformations in the choroid (coloboma).

Retina.

Retinitis Pigmentosa.—This degeneration of the retina, proceeding from the periphery to the centre, and

accompanied by secondary atrophy of the optic nerve, attacks both eyes, and is congenital or begins in early childhood. It leads by a chronic course, and after a duration of years or decades, to complete blindness. Hereditary conditions play here an important part. In about 50 per cent. of the cases hereditary predisposition can be demonstrated. A direct transmission from parents to children is rare, and runs, as a rule, through two generations only, though it is not possible to exclude with certainty further transmissions. More frequently we come across collateral heredity, so that several brothers and sisters — but, as a rule, not all of them — are attacked. As to the order of succession in which they are attacked, no general rule can be laid down. The male sex, however, supplies the larger percentage.

The affection of the retina can be complicated with idiocy, deafness, deaf-mutism, polydactilism. Occasionally these complications appear in the same family alternately with atrophy of the retina, and since these diseases and malformations occur in connection with consanguineous marriages, we also find that from one-fourth to one-third of the persons suffering from retinitis pigmentosa are descended from parents who were consanguineously related to each other. But as the percentage of consanguineous marriages is much lower than 25 or 30 per cent., it necessarily follows that there must be some connection between the occurrence of retinitis pigmentosa and consanguinity.

Glioma of Retina.—This affection of the eye, which, if the organ is not enucleated soon enough, may rapidly lead to a fatal issue, is a disease of childhood. In some cases its origin dates from the fœtal period. The congenital predisposition to it becomes evident from the fact that occasionally several or even all the children of healthy parents are attacked by glioma of the retina. One case was recently reported of a large family in which twelve out of sixteen children were affected with this disease.

Amaurotic Family Idiocy.

In this somewhat rare family disease the heredity is also of the collateral kind. Its principal symptoms are an increasing feebleness of mind, paralysis of the extremities, and loss of sight amounting to total blindness. The affection attacks, as a rule, children in the course of their first year, and they generally die from marasmus in the second. Several members of the same generation in the same family are usually attacked, and a most remarkable thing is that the disease has been observed almost exclusively among Jewish families.

Optic Nerve.

There is an inflammation of the optic nerve which goes by the name of 'optic neuritis in consequence of heredity and congenital predisposition.' It begins, as a rule, at about the twentieth year with a rather sudden disturbance of the central sight of both eyes, while the peripheral parts of the field of vision remain normal. Although the issue of the complaint, which keeps progressing for several weeks or months, is rarely complete blindness, the central (direct) vision is as a rule extinguished, so that the patients can find their way about with great difficulty only. The course of the disease is generally the same in the same family, so that the prognosis depends in the main upon the degree of malignancy which the affection shows in that particular family. In some cases headache, vertigo, and other disorders of the nervous system make their appearance at the same time.

Just as progressive atrophy of the optic nerve in general attacks more frequently the male sex, this disease also befalls almost exclusively the male members of the family. Notwithstanding this relative immunity of the female sex, the virus of the disease is often transmitted in such a manner that of several brothers and sisters, the brothers alone are attacked, while the sisters remain healthy, but procreate descendants

of whom the male members again in their turn become the victims. We have, therefore, here also not a direct but a collateral heredity, like that mentioned in connection with hæmophilia. Males affected with the disease are not likely to procreate descendants equally affected, but their healthy sisters may transmit the disease to their male children.

Glaucoma and Hydrophthalmus.

What was said on the subject of heredity in connection with glaucoma more than thirty years ago by the celebrated oculist Albrecht von Graefe still applies to-day, and we cannot do better than reproduce his own words: 'Heredity seems to exert the greatest influence in the typical inflammatory glaucoma, which, as we often enough see, attacks several members of a family, and passes from generation to generation. It has struck me that when several generations have already been successively attacked, the outbreak gradually occurs earlier—*i.e.*, during middle age, or even during the first half of life. In Berlin alone several such families are to be found in which glaucomatous diseases have occurred through three or four generations (possibly more), and the members of which generally exhibit the first symptoms between the thirtieth and fortieth year, while the parents and grandparents did not begin to suffer before they were in the fifties or sixties. Once I saw, what must of course be a rare exception, glaucoma occur in mother and daughter in the same year, although there was a difference of twenty-six years between their ages.'

There have been numerous cases published which tend to prove the direct and also the collateral heredity of glaucoma. A distinction as regards sex does not seem to exist. Patients of Jewish descent are seen comparatively often.

Hydrophthalmus, which has been described as the glaucoma of childhood, has repeatedly been observed among brothers and sisters.

Ocular Muscles.

Spasm of the eye muscles and defects of motility in the eyeball occur as disturbances based upon an hereditary predisposition. The so-called nystagmus—*i.e.*, the movements of the eyes to and fro in the form of clonic spasms—occurs as a symptom of diseases of the central nervous system, including some hereditary nervous complaints, and also in hereditary eye diseases, such as retinitis pigmentosa, congenital cataract, etc., in which the weak eyesight is regarded as the causal factor in the production of the nystagmus. But there is also a so-called idiopathic congenital nystagmus which accompanies a normal condition of the eyes with or without a reduction in the acuteness of vision, and which has occasionally been observed in two or more generations. In these cases the anomaly has more the importance of a cosmetic disfigurement, as the involuntary movements of the eyes do not, like the acquired nystagmus, cause an apparent motion of the external world.

Here also the continuity of the heredity is occasionally interrupted in such a way that healthy female members of the family transmit the complaint to male descendants. Only recently a very interesting case was reported in which nystagmus occurred through five generations in this manner: that all the male members had nystagmus, that nearly all of them married, that their children had no nystagmus; whereas of the female members, who were all free from nystagmus, the eldest daughter always transmitted the anomaly to her descendants.

Among the inherited congenital defects of motility, the most frequent is the incomplete or entirely absent elevation of one or both eyelids—ptosis. With this constant symptom there may be associated an inability to turn the eyeball upwards. There may be defects in moving the bulb outwards or inwards; there may be participation in the defect by the external but not by the internal eye muscles, or by the ciliary muscle or the sphincter of the pupil.

Occasionally we meet other malformations as well, such as epicanthus, a cutaneous fold stretching across the internal canthus, which diminishes the space between the eyelids. Sometimes the defect is not noticeable at birth, but develops later in life. In some cases the disturbance in the motility is the same in all the affected members of the family, in others it varies. The same thing may be said with regard to the cause of the trouble, which may be different in different cases, or remain altogether unknown. The origin of the defect may be due to some morbid process in the brain, in the nerves, or in the muscles. Occasionally the latter are found to be replaced by cordlike bands of connective tissue.

Heredity may become apparent here in a collateral form in brothers and sisters. Frequently, however, direct heredity, without special prevalence in any one sex, can be proved, and has even been traced through as many as five generations.

Functional Disorders.

Congenital Night-blindness.—In addition to the affections described above, which are associated with more or less pronounced anatomical changes, there are a number of disturbances in the sense for light and colour of undeniable hereditary origin. It is usual to classify them among the so-called functional disorders. Congenital night-blindness is one of them. The eyesight in the dim evening light is so much impaired that the sufferers are unable to find their way about. Yet the eye shows no changes whatever, even if examined with the ophthalmoscope. In the majority of these cases it has been possible to demonstrate a hereditary transmission, similar to that of optic neuritis. Although congenital night-blindness is found oftener in males than in females, the latter also are attacked sometimes. The father, too, may transmit the disease, and it is quite possible for sisters and brothers to be affected alike.

Congenital Colour-blindness—(*a*) *Partial Colour-blindness.*—There are individuals who mistake red for green and *vice versâ*, but whose eyesight is otherwise unimpaired. They are consequently unsuitable only for certain definite occupations, such as the railway service, with its red and green signals. In this defect, too, heredity can often be demonstrated, so that we speak of a hereditary form of colour-blindness. There are ten times as many partially colour-blind men as women, and this proportion is observed in the hereditary form as well. Here, too, the heredity is like that of hæmophilia—that is, from among the children of a colour-blind father the daughters escape the defect themselves, but transmit it to their sons. It is therefore nothing strange if brothers often are colour-blind. Nevertheless, the heredity can extend to the female sex as well, and exceptionally the transmission proceeds also through male relatives.

(*b*) *Total Colour-blindness.*—In contrast to partial colour-blindness, total colour-blindness constitutes a very tedious complaint, but occurs, fortunately, far more rarely. The visual organ is deteriorated in character, the acuteness of vision is diminished, and the outer world appears to the colour-blind eye as clothed in different shades of grey. Total colour-blindness has been observed about twice as often in men as in women; the heredity was a collateral one only, as comparatively often several brothers and sisters have been found to be totally colour-blind.

Microphthalmus and Anophthalmus.

Abnormal congenital smallness of the eyeball (microphthalmus), which can go so far as to leave in place of the organ a rudiment visible only with the microscope (anophthalmus), has been observed several times in one and the same family. Microphthalmus is known to be transmissible from the parents to their offspring, even through three generations. It is but natural that there should be hardly any cases recorded as to

the propagation of individuals with double congenital anophthalmus, but the hereditary form of one-sided anophthalmus has been observed. A man with congenital left anophthalmus procreated by a healthy wife two children, of which the first-born exhibited right anophthalmus.

A practical question worth considering in this connection is whether parents can transmit to their offspring diseases of the eye acquired during life and not resting on a congenital predisposition. Has, for instance, a married man who has had one of his eyes removed cause to apprehend that his children will be born with anophthalmus? All we can say is that no such case has hitherto been described. A negative conclusion may also be drawn from experiments made upon animals by one author. He removed the right eye in about 200 rabbits, but could produce in the offspring no abnormality of the eyes.

We are also without proofs as to the hereditary transmissibility of acquired eye diseases due to inflammation and other causes, and we may therefore regard the probability that acquired eye diseases in the parents will influence the development of the eyes in the offspring as practically non-existent.

XIX.

DISEASES OF THE LOWER UROGENITAL ORGANS AND PHYSICAL IMPOTENCE IN RELATION TO MARRIAGE.

By PROFESSOR C. POSNER (Berlin).

Diseases of the Testis and Epididymis.

The diseases of the testicles are of the greatest importance in connection with the subject of marriage, because the normal function of these glands constitutes the primary condition necessary for the fulfilment of the real object of marriage, which is the perpetuation of the species. In making her anatomical arrangements, Nature has not been lavish in providing the male organs of generation with means of protection. The testicles are not, like the ovaries, hidden in the interior of the organism ; they lie in their sac-like receptacle outside the abdominal cavity in a rather exposed situation, where they are subject to all kinds of injuries, contusions, punctures, and lacerations. But as a compensation for this disadvantage they have, so to speak, been endowed with an almost wonderful productiveness, which seems to exceed by far the necessary requirements. Not only are there with each ejaculation millions of spermatozoa discharged, one of which alone suffices to impregnate the female ovum, but even in diseases of all kinds there always remains for a long time a perfectly satisfactory function. In severe general illnesses, for instance, no matter what the state of nutrition is like, the production of semen, and with it the sexual desire, are very

slow in disappearing. On the contrary, we know for a fact that consumptives often manifest shortly before death a strongly marked sexual desire, accompanied, no doubt, by the secretion of a perfectly serviceable seminal fluid. Even in local diseases of the organs of generation the morbid process must be a very advanced one for the production of semen to be really arrested. Besides, it must always be recollected that there are two testicles, and that disease seldom attacks both simultaneously. It would appear as if Nature intended to provide in the bilaterality of the organ an additional protective agency.

Congenital absence of the testicles, or of one only, is very rare. Where such an absence has been observed, the probability is that it was not a real absence, but a case of retention of the organ in the abdominal cavity. But one often meets with congenital atrophy of the testicle—that is, a well-marked smallness of one testicle in individuals otherwise quite healthy. This condition is not rarely accompanied by a pronounced compensatory largeness of the sound testicle. Occasionally such an atrophy is present in both testicles, especially in persons badly developed and exhibiting the so-called 'infantile habit,' or presenting deviations which constitute the 'female habit.' These anomalies are seen, for instance, in cretins, who look, as long as they live, like big children; in myxœdema, until successful treatment is instituted; and also in individuals who belong to the category of homosexuals, and in whom often enough the shape of the pelvis, the growth of hair, and the development of the breasts, are in themselves evidences of an *error naturæ*. There is not, however, in these cases an arrest of the production of semen; in fact, they do not involve the existence of an impotence. The deviations are more of a psychical nature; there is an absence of sexual desire or a sexual inclination to persons of the same sex, and it is these psychical rather than physical manifestations which render the marriage of such persons inadvisable.

I should like, moreover, to point out that the size of the

testicle is no criterion of a greater or smaller virility. The lay public are apt to overestimate the importance of large testicles, or to misunderstand it altogether. Not only is the bigness of the organ no guarantee that its glandular elements are present in large numbers—in other words, that there is a secretion above the average—but that bigness may be due to hydrocele, varicocele, or some other diseased condition. The question whether a testicle is functionally normal can be answered with certainty only by the microscopical examination of the secreted fluid, and even here certain precautions are absolutely necessary.

It is siad that acquired atrophy of the testicles occurs after certain general diseases. Thus, for instance, chronic lead-poisoning has been known to have this result, a point which deserves to be borne in mind. It has also been observed that injuries to the back of the head can lead to a rapid diminution of the sexual desire, and in this way to an atrophy of the testicles caused by their non-use. If the epidemic form of parotitis produces an atrophy of the testicles, this is only done in a roundabout way by means of an epididymitis.

In old age atrophy of the testicles is something physiological, though it is impossible to lay down a general time-limit applicable to all cases. Sometimes the testicles retain their function in extremely old men. Complete absence of seminal fluid without the coexistence of some mechanical obstruction is rare, but it does happen occasionally that apparently healthy and vigorous men, whose testicles are normal in size, do not produce a real seminal fluid. It appears that the prognosis in these cases is extremely unfavourable.

A form of deficient development of the testicles somewhat allied to atrophy is that in which the organs have not taken their normal course into the scrotum, but have remained in the interior of the abdominal cavity or in the inguinal canal. These malformations are designated as ectopias of the testes, and they are of especial importance from the marriage point

of view when they are accompanied by other malformations in the genital region which help to constitute what is called 'false hermaphroditism' or 'hermaphroditismus spurius.' A number of individuals so malformed have been taken for females, and been brought up accordingly. Many of them experienced a sexual desire for persons apparently of the same sex as themselves, and only when impregnation took place in their partners did the real state of affairs become known. In others of these cases the false hermaphrodites have married as women, and continued as such until enlightened by their medical advisers. Some of them can act in sexual intercourse both as man and woman.

But where these additional malformations are not present, and the only abnormality is the retention of the testicles in the abdominal cavity or in the inguinal canal—so-called cryptorchism—the condition is also not without its serious aspect. Particularly so in inguinal cryptorchism, for there the testicles are subject to manifold injuries, apart from the circumstance that they are still more prevented from developing to their normal size and function by the pressure of the surrounding parts. Moreover, the observation has often been made that testicles so situated have an especial tendency towards malignant degeneration, and especially sarcoma, which is extremely dangerous to life on account of its possible dissemination all over the abdominal organs. The question of cryptorchism is therefore not one of virility merely: it is more as a *locus minoris resistentiæ* that it must be regarded, as a possible source of origin of serious illness at a later period of life. The marriageableness of a person thus malformed is a point that requires the greatest amount of consideration, and where a surgical operation for the correction of the defect is possible at an early age, this should under no circumstances be neglected, with a view to future contingencies. The earlier the operation is performed the better the outlook.

We now come to inflammations of the testicles. Acute

inflammations do not concern us here much. They generally occur as complications of gonorrhœa, and occasionally in connection with parotitis and enteric fever, and the issue is in most cases favourable. It is when results are left behind in the form of cicatrices in the structure of the organ that the married state is endangered, for mechanical obstructions are thereby created, arresting the passage of the spermatozoa.

This inability of the spermatozoa to make their exit, which goes by the name of azoospermia, is the most frequent and most important cause of the generative impotence of man. Its presence can be definitely ascertained, as already mentioned in another place, by a microscopical examination of the spermatic fluid, and by that means only.* As to whether it is the duty of the medical examiner who diagnoses azoospermia to inform his patient, the answer is in my opinion decidedly in the affirmative. The couple in question must be told the truth fully and without reservation, that their marriage is bound to remain sterile. A long delay, or perhaps a misrepresentation of the real state of affairs, is unscrupulous conduct. Very often most important decisions depend upon the medical opinion, such as family arrangements, the adoption of children, and so on. But there is one thing which is absolutely necessary—namely, that husband and wife should be equally enlightened. We have only to recall the very sad family tragedy which was reported a few years ago, in which the husband was quite aware of his sterility, and the wife, who knew nothing about it, became, nevertheless, pregnant. Of course, if the husband alone consults the doctor, the latter is bound to maintain professional silence; but it is advisable to point out to the patient that it is his duty to tell the wife the whole truth, if only for the humane reason to save her from constantly reproaching herself that she is the cause of the sterile marriage, and also to put an end to the useless cures which

* Details as to this examination will be found in the larger manual.—Translator.

she is openly or secretly undergoing at the hand of gynæcologists or quacks.

There is one particular disease of an inflammatory character which frequently attacks the testicles that is of the highest moment—namely, tuberculosis. This happens specially in individuals who suffer from tuberculosis of other organs, and adds an element of danger to their married life, since it cannot be denied that patients with tuberculosis of the genital organs are capable of infecting their married partners by means of the sexual intercourse. I am therefore of the opinion that the presence of manifest tuberculosis of the genital organs is a reason for refusing the medical consent to a marriage.

Syphilitic tumours of the testicles constitute an absolute reason for prohibiting marriage, but it is not quite so easy to come to a decision in the presence of other kinds of tumours. Where the outer surface is not affected, and the tumour is benign and contained inside the organ, there is no necessity to object to the marriage, as the generative faculty may remain unimpaired for a very long time. Even in sarcoma and carcinoma this is frequently the case, but it is evident that these malignant tumours require surgical interference as soon as they are recognised. The question remains to be considered whether these malignant tumours are transmissible through sexual intercourse. Several instances have been reported wherein 'genital cancer' of the husband, in which we must include in the first place cancer of the testicle, has resulted in causing cancerous disease in the wife. But in my opinion these cases of *cancer à deux* are nothing but mere accident. Of course, where there are open carcinomatous ulcers—for instance, of the scrotum (sweep's cancer)—conjugal intercourse must be regarded as absolutely inadmissible, seeing that an implantation of cancer particles is then not exactly impossible.

Hydrocele, a frequent affection of the testicle, may likewise constitute a marriage obstacle if it assumes extreme pro-

portions, if for no other than mechanical reasons. Otherwise the testicular substance remains almost intact, in spite of the considerable pressure exercised upon it, and the production of semen goes on quite normally. But in later stages it is not impossible for a hydrocele to produce atrophy of the testicles, and in this way generative impotence, either because both sides are affected, or because the one is already sterile from some other cause—say, epididymitis. If the hydrocele fluid contains large numbers of spermatozoa, or if the tumour consists of spermatic fluid—so-called spermatocele—the matter is of still greater importance as the possible explanation of an existing sterility.

Another very important and rather frequent complaint in connection with the testicles is the so-called varicocele, which consists of a varicose dilatation of the veins in the testicle and scrotum. Young married men form a large contingent of this category of patients, and the cause is supposed to lie in sexual excesses. In candidates for marriage who suffer from varicocele the complaint does not form a marriage obstacle; on the contrary, the more regulated conjugal intercourse is likely to be followed by an improvement in the condition.

A word remains to be said on what is rather vaguely described as neuralgia of the testicle. It manifests itself in the form of localized attacks of pain in the testicle, which reach sometimes almost unendurable proportions. As the complaint is observed very often in connection with frequent sexual irritations which do not meet with the desired gratification, it is looked upon as a typical 'bridegroom's disease.' The same thing is experienced by young men who are in the habit of subjecting themselves to strong erotic influences in such places as music-halls, café-chantants, etc., and who yet refrain on principle from indulging in actual sexual intercourse. This is, by the way, the only evil result which I have seen from sexual continence, and an appropriate earnest word of advice is all that is wanted in the way of treatment.

Diseases of the Vesiculæ Seminales.

Although it is still doubtful whether the vesiculæ seminales are only reservoirs of accumulated semen, or whether the secretion which they produce has any influence on the vitality of the spermatozoa, they have undoubtedly an important physiological function to fulfil, and their diseased condition cannot remain altogether without effect. *Prima facie*, one would think that even if these receptacles were to discharge pus or remain closed up, there would still be a serviceable semen coming from the epididymis and the prostate. Nevertheless, inflammations of the vesiculæ seminales must be regarded with suspicion, and particularly the addition of pus or blood to the spermatozoa seems to act upon them detrimentally. Such presence of blood in the seminal fluid may, however, also occur without any inflammation. In some men this happens after congestions, and sometimes even after sexual excesses. The phenomenon causes to the patients extreme alarm, but it disappears, as a rule, after a short time, with rest and the necessary care. In newly married people especially such an occurrence is by no means rare, but the prognosis is, as long as there are no other signs of local disease, a favourable one. Where there are signs of inflammation the case is more serious, and it demands the necessary medical treatment and rest in bed. As both acute and chronic inflammations of the vesiculæ seminales are almost without exception of a gonorrhœic origin, great hesitation must be exercised in giving the consent to the marriage of an individual thus affected, partly on account of the danger of infection, and partly because of the possibility of the marriage proving sterile.

The vesiculæ seminales may be the seat of calculi, cancer, or tuberculosis. As regards the latter, I may say that I do not regard it as at all probable that a tuberculous infection of the female ovum by means of a bacilli-containing secretion can take place—in other words, that congenital tuberculosis

can arise in this way. Nor is it by any means certain that tuberculosis can be transmitted by husband to wife through this medium; but as the possibility of its happening has been proved by experiments on animals, we must draw the conclusion that patients of this class should be prohibited from practising sexual intercourse. Besides, if such a tuberculosis does exist, sexual irritation is liable to aggravate it considerably. As to cancer of the vesiculæ seminales, it is generally a part-symptom of cancer in other parts of the urogenital system.

None of these pathological processes can, however, compare in importance with a complaint which is very frequent and apt to cause serious consequences—namely, spermatorrhœa. Under normal circumstances the vesiculæ seminales containing the seminal fluid are closed, and special excitations are required to effect their opening and to allow their contents to pass out. Deviations must, therefore, take place in one of two directions: either the closure is insufficient and a discharge takes place under conditions which in a healthy man are inoperative, or else such nervous excitations are capable of causing the vesiculæ seminales to open, which in a healthy man are unable to bring about this result. The ultimate effect is, of course, in both cases alike, except that in the first the discharge is more continuous and quite independent of matters sexual. The term 'spermatorrhœa' is applied to both processes, though it would be better to restrict it to the first, and to include the second among the pathological emissions. The latter may, however, in their final stages pass into a condition of continual discharge.

At any rate, the permanent presence of seminal constituents in the urine is always a pathological phenomenon, which in the vast majority of cases is due to gonorrhœa. More rarely the cause lies in affections of the central nervous system—for instance, tabes dorsalis. That a similar result may arise from sexual self-abuse, especially if practised for a long time, does not admit of any doubt, but I believe that the number

of cases of this class is far smaller than of those due to gonorrhœa. I have often been under the impression that the sexual abuse has, so to speak, been dinned into the patients until they have come to believe in it themselves. With regard to neurasthenia, too, something similar may be said. Patients who are troubled with spermatorrhœa, and those who imagine that they suffer from it, easily become neurasthenic.

Not all cases of spermatorrhœa must therefore be taken too seriously. Those of a purely inflammatory character should be regarded as local affections merely, and treated accordingly. The prognosis is very favourable, and I even consider, so long as there is no risk of infection, sexual continence as by no means absolutely necessary. Candidates for marriage must naturally be recommended to postpone the event until all the inflammatory symptoms have disappeared; but as soon as this is established beyond doubt, I do not think the prohibition of sexual intercourse justified if the urine still contains a few solitary spermatozoa. On the other hand, the extreme cases of continuous flow of semen are a decided argument against marriage or the practice of sexual intercourse respectively, seeing that they are, as a rule, associated with other nervous disturbances in the genital organs.

With regard to excessive emissions it is very difficult to draw a line of demarcation. In healthy normal men the occurrence of pollutions fluctuates exceedingly; some men hardly ever have any, while others, though otherwise perfectly healthy, are plagued by them very frequently. It is only when the emissions are succeeded by a feeling of exhaustion and weakness that they must be regarded as a disease. In that case there is also a disproportion between excitement and effect; irritations which in a healthy man remain ineffective produce in those whose vesiculæ seminales are thus affected discharges of semen, accompanied by other signs of weakness or excitability of the central nervous system. This disproportion can keep increasing as time goes on. At the

beginning there are erotic dreams, and the ejaculations take place during sleep only. After a time they occur during the waking state as well, by the slightest imagination of an erotic character, and finally by the mere sight of a female person, and even through looking at or touching objects used by women. Sometimes ejaculations are produced by mental impressions which a mind normally constituted can hardly connect with the sexual function, or which are more likely to cause in a normal man feelings of disgust and nausea. Eventually the psychical element may disappear altogether, and purely mechanical irritations, such as are caused by riding or driving, may have the same effect. Under such circumstances it is even possible for the erection phenomenon to be quite absent, and for ejaculation to take place nevertheless.

The milder cases of spermatorrhœa and nocturnal emissions are prognostically favourable if the proper treatment, both physical and mental, is adopted, and it is not even necessary as a matter of principle to dissuade individuals so situated from marrying. The complaint is soon lost amid the regular surroundings of married life. The matter is, however, different if married men suffer from emissions in spite of a regulated sexual life, and I always look upon this as a sign of high irritability and weakness. The patients are apt to draw the conclusion that the occurrence of the pollutions is due to the fact that they do not do justice to their conjugal requirements, and they accordingly increase their activity in that direction, instead of doing exactly the opposite.

The worst outlook is presented by the cases in which ejaculation is produced by totally inadequate excitations. They very rarely develop during married life—at least, when the circumstances are normal—but are observed principally in *bon-vivants* of the worst description, men who, having become by habitual and prolonged over-indulgences of all sorts sexually blunted to normal erotic influences, take refuge in constantly changing means of excitement, until the whole of their nervous system, especially its sexual sphere, finally

becomes completely shattered. Masturbators in particular, whose sexual abuse is a practice so easily accomplished, form a large portion of this class of patients. That such people must not be allowed to marry in order to get rid of their complaint goes without saying. Apart from the fact that the psychical depravation of such a husband is bound to make the wife miserable, there is the factor to reckon with that physical impotence in men thus affected is but a question of time.

Diseases of the Prostate.

Diseases of the prostate possess in relation to the question of marriage, and especially with regard to its fruitfulness, a highly eminent importance, this being due to the circumstance that the secretion produced by the prostatic gland forms a very material constituent part of the spermatic fluid.

The acute inflammation of the organ is almost always a complication of gonorrhœa, sometimes after the lapse of a considerable interval, so that it does not present any features of special interest to the married state. But chronic prostatitis occurs sufficiently often to call for notice in connection with marriage. There are two forms of chronic prostatitis, those due to gonorrhœa and those due to other causes. The first render, as long as there are gonococci present and an infection of the wife is therefore likely to happen, marriage absolutely contra-indicated; the second, though less serious than the gonorrhœal forms, may, nevertheless, also result in making a marriage sterile. The appropriate treatment must therefore be instituted before marriage can be thought of, and happily this is often done with success.

There is an affection of the prostate which is known by the name of hypertrophy of the prostate, and which, extending as it does over many years and in men somewhat advanced in age, is often the cause of an unmistakable increase in the sexual desire, leading to all sorts of unpleasant consequences.

The treatment of these cases, especially in the later stages, is not very satisfactory, and even castration, from which much was at one time expected, is now no longer employed.

Of other diseases of the prostate, more or less rare, we may mention atrophy, which may be the cause of an impotentia generandi, tuberculosis, carcinoma, and stone-like concretions.

Diseases of the Urethra.

The principal and most frequent disease of the urethra is gonorrhœa, which has already been dealt with in another place. But there are one or two conditions which we shall consider here.

There is, first of all, a congenital stricture of the urethra, which occurs not infrequently, especially at the orifice. The slighter forms are not of much practical importance; those which constitute an obstacle to the passage of the semen require a small and harmless surgical operation.

A frequent cause of great anxiety is formed by a condition which must be regarded mainly as an abnormal secretion, and which is characterized by a discharge from the urethral orifice of a thin, rubber-like, viscid fluid. It occurs oftenest in connection with frequently repeated sexual excitement which is not gratified—for instance, in young men engaged to be married. The non-gonorrhœal nature of the discharge can be ascertained by a microscopical examination. The phenomenon is nothing else but a profuse secretion of the urethral glands, a so-called urethrorrhœa; it is perfectly clear that there is no occasion to dissuade from marriage on its account.

In addition to the real gonorrhœic inflammation of the urethra, there are others which are produced by other micro-organisms than the gonococci. They are harmless complaints which often heal quite spontaneously, although occasionally they last a long time. In my opinion the affection is one resting upon a genuine contagion, and it consequently precludes the contraction of marriage as long as it lasts, seeing

that it may produce inflammations in the genital organs of the wife.

Considerable interest attaches from the marriage point of view to strictures of the urethra, which are, in the majority of cases, due to gonorrhœa, but which may also be congenital or the result of an injury. An early symptom of this complaint is pain during the exercise of the sexual act, a sort of 'painful delight,' which necessitates an examination of the urethra. Later on other symptoms supervene, including complete 'aspermatism,' as the seminal fluid is prevented from passing out. For this reason strictures are so enormously important to the married state, and should on no account be neglected from the very beginning. Married men with strictures should subject themselves to periodical examinations in order to avoid serious aggravations, which sometimes occur quite suddenly.

In women urethral strictures are rare, and not connected with the sexual function. Occasionally the female urethra is the seat of a sort of 'elephantiasis,' which is very painful at the slightest touch, and can only be removed by operation.

Foreign bodies introduced into the urethra, ostensibly to relieve urinary troubles, but in reality from a masturbatory perversion, occasionally have to be removed by surgical operation. These cases require looking into, as they are generally signs of a perverted sexual life, the importance of which in relation to marriage is considered in a special article.

Diseases of the Penis.

The male member is the subject of various anomalies and imperfect forms of development. Sometimes its dimensions are so rudimentary that they suggest its total absence, and if there are also other defects in the genital region, errors as to sex easily occur. These extreme instances are rare, but there are two anomalies which are fairly frequent—namely, hypospadias, in which the opening of the urethra is on the under

surface of the penis, and epispadias, in which the opening is on the upper surface. Slight forms of hypospadias are very often seen in people who are not even aware that there is anything wrong with them; but the severer forms—that is, where the urethral opening is situated far backwards—are decided obstacles to marriage, as impregnation can never take place under such circumstances. It is possible to do something, but not very much, by a surgical operation, particularly if the difficulties of micturition are very great. It is also worth mentioning that hypospadias is one of the malformations which are distinctly hereditary.

Epispadias interferes even more with the procreative faculty than hypospadias, and it is, moreover, very often accompanied by other arrests of development. Here also operative measures can do very little, and are mainly directed against the urinary troubles.

Excessive size of the organ is occasionally a source of great inconvenience, and even of trouble, at the beginning of married life, but as a rule the matter soon takes a turn for the better. The condition occurs principally in masturbators, and is, in my opinion, rarely congenital. It may also arise in men who have been accustomed to sexual intercourse, but have practised abstinence for some time previous to their marriage.

Abnormal smallness of the penis is rarely a cause of complaint; but, on the other hand, congenital phimosis deserves attention on account of its being very often the cause of an early habit of masturbation. Sometimes a constricted foreskin may cause such pain as to lead to an instinctive loss of sexual desire, and therefore to impotence. The remedy is obvious: the necessary operation of circumcision must be performed in children exhibiting this abnormality. It is as well to mention here that phimosis may give rise to many and grave complications.

Besides being subject to the above and other abnormalities, the penis is also the seat of various more or less rare diseases

and injuries, among the latter being included the so-called fracture of the penis and surgical amputation. Regarding cancer of the penis and tuberculosis in the form of open ulcers, it is necessary to prohibit conjugal intercourse to men so affected, seeing that the respective diseases may be conveyed to the wife in this manner.

We shall now devote a little space to a condition which plays in connection with the subject of marriage a very considerable part—namely, impotence not due to disease of any of the genital organs. While these organs are perfectly healthy, there is nevertheless an impossibility for them to exercise their proper function, for the reason that the nervous mechanism which produces erection is either totally or partially disabled. We are not dealing here with those cases in which there is a partial or total absence of desire for persons of the opposite sex, and in which it requires some perverse form of excitation for the central nervous system to respond. This kind of psychical impotence is discussed in another chapter. Here we are mainly concerned with those cases where the nervous impotent does experience a normal sexual desire without being able to transform it into action at all, or only under certain conditions.

Such impotence is seen physiologically before the development of puberty and in old age. But just as we often see erections in children, and just as there are precocious boys who from an early sexual desire develop a habit of masturbation, so we occasionally see the virility retained in old men for a surprisingly long time. Both these deviations from the physiological rule interest us here, because in the one case the evil habit of self-abuse leads to an early diminution of the virile power sufficient to alarm prospective candidates for marriage. The fear of the consequences of the early transgressions are, however, generally worse than the consequences themselves. In the majority of cases the virility returns after a little time. With regard to the virility in old men, this is very often of a deceptive kind.

Erotic imaginations or dreams—possibly under the influence of a full bladder—give rise to erections, which convey the impression that the virility is still unimpaired; but when put to the test it is found to be absent. This is a circumstance to be borne in mind in those not very rare cases where very old men, mostly widowers, contemplate marrying again, relying upon this apparently sufficient virility. Disappointment after the marriage is in these cases the rule.

The same sort of relative impotence and variety of circumstances is seen in individuals whose age falls within the period of sexual maturity proper. Many candidates for marriage consult their doctors because they do not feel quite confident about their virile power, which they have perhaps never tested practically. Or in order to satisfy themselves they have made an attempt in that direction, but without success. Provided there is no sexual perverseness present, such individuals, if otherwise healthy, may safely be allowed to marry, as it is permissible to assume that the psychical inhibition which prevented the occurrence of erection was caused by anxiety, worry, and perhaps also by disgust with the attempted mode of beginning. It also happens sometimes that married men who are, as a rule, quite potent notice that in their occasional lapses from conjugal fidelity their virility fails them entirely, doubtless in consequence of a similar psychical inhibition.

But where the loss of virility comes on gradually in spite of the retention of the full sexual desire, the case is not so favourable. If the cause lies—as it frequently happens in young married men—in too great a demand on the sexual capability, a period of rest and the necessary hygienic measures may soon re-establish the normal state of affairs. The outlook is, however, much worse in men who have had a stormy past, and been accustomed for a long time to sexual excesses, and who have developed into sexual neurasthenics. Patients of this sort are easily relieved, but difficult to cure. At the beginning of the treatment there is generally an

improvement, but a relapse soon takes place, and then there is no further progress. What I desire here to warn against is artificial irritation of the nervous system by such means as alcohol, etc., which many patients, especially married men, are wont to adopt. The amount of physical and moral damage produced by these fruitless irritations is altogether incalculable. In conclusion, it is necessary to mention that some very serious diseases of the central nervous system—for instance, tabes—often make their appearance in the form of a gradual loss of virility.

This is also the place to state that those individuals who suffer from priapism—involuntary erections not connected with sexual excitement—are wrong in believing that they will obtain relief from frequent cohabitation ; their condition can thereby only become materially worse.

Diseases of the Bladder.

There is not much to say with regard to diseases of the bladder from the standpoint of the married state, except that in women chronic cystitis often develops in association even with normal labours. But there is a complaint which, though it is neither serious nor dangerous, may very well receive here a few words of consideration—namely, enuresis nocturna. In children this affection is regarded more as an inconvenience, and in most cases it disappears in the course of time. But occasionally the trouble resists every treatment, and remains very pronounced in spite of the age becoming more mature. The matter begins then to wear a serious aspect. There are young girls in whom an involuntary evacuation of the bladder takes place regularly every night once or even several times, so that travelling, sleeping at hotels, and so on, becomes an absolute impossibility. Every possible thing is done, especially in view of a contemplated marriage, to put a stop to the nuisance, but unfortunately the condition is often extremely obstinate. Recently surgical

operations have been performed in such cases with more or less success.

Speaking of diseases of the bladder generally, it is important to remember that they have a tendency to travel upwards towards the kidneys, and the question of the consent to the marriage of persons suffering from vesical troubles is therefore of great practical importance. In men the danger is perhaps not so great; but, still, no man with a cystitis should marry until a cure has been effected. The same thing may be said with regard to stone in the bladder. Tuberculosis and tumours of the bladder are absolute indications against marriage. In women the position is even more serious. In their case we have to take into account not only, as in the case of men, the disease and the possible shortening of the life-duration, but also the dangers which arise in consequence of pregnancy.

XX.

DISEASES OF WOMEN, INCLUDING STERILITY, IN RELATION TO MARRIAGE.

By L. BLUMREICH, M.D. (Berlin).

The female genital organs are subject to a large number of injuries and diseases, some of them actually due to the fulfilment of their physiological function. Hæmorrhages produced by the rupture of the hymen are a frequent source of serious trouble, and even in the absence of all violence other injuries may be caused by the sexual act, leaving behind them more or less lasting consequences. This is particularly likely to be the case if the genital organs are the seat of malformations, congenital or otherwise, or if they have previously been subjected to disease or operations, and also during the puerperal period succeeding even ordinary labours.

Whether the employment of anticonceptional measures, such as the interrupted form of cohabitation, or the introduction of conception-preventing apparatuses is injurious or not to the female genital organs it is impossible to answer in a general way. We not infrequently see women who admit having carried on this practice for many years, and in whom there is no sign of any ill-result from it. In other women, however, this circumstance seems to be an important etiological factor of severe inflammatory diseases of the genital organs. A significant element in this connection lies, apparently, in the greater or lesser sexual frigidity of the woman in question. Frigid natures are generally indifferent in the

matter, whereas sexually hungry women may, on account of the ungratified desire, develop more or less serious symptoms. The mechanical conception-preventing measures have in addition the disadvantage that they often fail to accomplish their object, and they frequently, moreover, cause most serious injuries, not to mention the unpleasant situations which arise from their employment.

An important part is played in connection with the subject of marriage by the female genital organs when they are the seat of developmental anomalies. Among the latter, hypospadias with its accompanying enlargement of the clitoris is a by no means rare cause of mistake in pronouncing the sex of newly born infants. Individuals so malformed, in whom the sex is a matter of doubt, are called pseudo-hermaphrodites, and they are called male or female pseudo-hermaphrodites according to the real sex to which they are afterwards found to belong. That pseudo-hermaphroditism is not exactly a rare phenomenon may be judged from a recent compilation of 1,000 cases, giving a terrifying picture of the social and forensic significance of the malformation and of its influence upon the various aspects of everyday life. In some of the cases the imperfect determination of the sex has led to the most unhappy results, such as suicide, severe insanity, tragic family conflicts, extremely unhappy marriages, serious collisions with the criminal law, various crimes, and even murder. Numbers of pseudo-hermaphrodites have married persons of the same sex as themselves, and in some instances decided to continue as they were brought up, so as to avoid a scandal and unpleasant gossip. What also interests us here is the circumstance that in many of the cases the malformation was shown to be hereditary.*

There are, besides hypospadias, a number of other malformations and imperfect developments of the female genital organs, all of which tend to act as obstacles to conception,

* Details on this interesting subject, and several concrete instances, will be found in the large edition of this work.

and therefore to marriage, though this is not always the case.

The uterus is liable to various displacements, and the principal cause giving rise to them is, according to some gynæcologists, childbirth, especially if badly managed or if the puerperal woman gets up too soon. Others maintain that a large number of such displacements date from a period preceding childbirth, but that they come under medical notice on account of the complaint becoming sufficiently aggravated by the complicating pregnancy to attract attention. The employment of pessaries to correct the condition is not, generally speaking, an obstacle to cohabitation, though occasionally, if not properly applied or if made of unsuitable material, they are apt to cause some trouble. The question whether simple displacement of the uterus, unaccompanied by an inflammatory disease, may cause sterility is not answered by all gynæcologists alike, but it seems that there are occasions when it must be answered in the affirmative. In the great majority of cases, however, there is no doubt that the mechanical factor alone is not accountable for the sterility of the marriage, and that sterility is due to some complication. As to the effect of the displacement on pregnancy and labour, it is in most cases very slight, and those processes take an uninterrupted course. Exceptionally, however, untoward complications are apt to occur, necessitating immediate active assistance. An early symptom of threatened trouble is retention of urine or dribbling of urine (with the bladder overfull) during the first half of the pregnancy.

Slight degrees of displacement are therefore no indication against marriage unless there are complications present. Where the displacement is formed by an extensive prolapse a surgical operation is advisable, if possible, before the consummation of the marriage.

One of the most frequent injurious consequences of the married state in women is the liability to inflammatory diseases of the genital organs. Not only are such diseases

apt to be conveyed by infection through sexual intercourse, as, for instance, in the case of gonorrhœa, but often, after improperly conducted labours, inflammations of the genital organs supervene which deprive the poor women of health and vitality, sometimes for very long periods. Where a woman has, previous to her confinement, suffered from a mild form of gonorrhœa, this disease generally assumes during the puerperium a most alarming character, thus forming the beginning of many years' sufferings, sickness, and inability to work and enjoy life, as well as a cause of permanent sterility. The principal conclusion to be drawn from this is the necessity of carrying out during the puerperium all the well-known prophylactic measures for preventing infection and all the avoidable complications. No woman in childbed should sit up in bed before the eighth or ninth day, or get up before the discharge has lost every trace of blood, and this rule should be observed after miscarriages no less than after ordinary confinements.

That where inflammatory diseases of the genital organs do appear sexual intercourse is not permissible as long as the acute stage lasts, goes without saying. In the more chronic cases the decision depends upon the individual circumstances. Sometimes complete abstinence is imperative, at others a little latitude may be allowed.

Sterility is a frequent consequence of all inflammatory diseases of the genital organs. Where conception does take place, miscarriages often interrupt the pregnancy prematurely. Or there may occur in the course of the pregnancy hæmorrhages and other disturbances which affect both the mother and the child.

In many anæmic and chlorotic girls inflammatory affections of the genitals form a part-symptom of their general state of ill-health, and from what has been said it follows that no girl so affected should be allowed to marry before a cure has been achieved, a not unattainable result. On the other hand, we must remember that marriage by itself exercises sometimes in

anæmic girls a curative effect, and that the abdominal complaint disappears in that case along with the others.

Special mention must be made of tuberculosis and cancer of the genital organs. The former, though as a rule secondary, and associated with tuberculosis in other organs, does undoubtedly arise, sometimes quite independently, and in the absence of tuberculosis elsewhere. We must therefore assume that there is a primary genital tuberculosis produced by infection through cohabitation with a man suffering from tuberculosis. In this connection a most interesting question arises: Does such infection proceed from a man when his genital organs are affected, or is a man suffering from some other form of tuberculosis, say consumption, capable of infecting the genital organs of his wife? The first part of this question must be answered in the affirmative, but it is not possible to give a definite answer to the second. It is, however, probable that the semen of consumptives whose genitals are normal can also be infective. A certain amount of predisposition to tuberculosis on the part of the genitals is in that case to be assumed, and additional factors are also general debility, poor nutrition, and severe chlorosis. Gonorrhœal disease, too, makes the genital organs receptive for the virus of tuberculosis. That the puerperal state is likely to furnish a favourable opportunity for the bacteria to settle and develop is well imaginable, and this may also be said with regard to malformations in the sexual organs and injuries of various kinds.

The danger of transmission of genital tuberculosis from wife to husband is probably smaller than it is the other way about. There are no cases to prove this conclusively. But there is no doubt that such transmission can take place from the mother to the fœtus *in utero*.

In tuberculosis of the female genital organs sterility seems to be the rule, but there are cases known in which pregnancy did occur notwithstanding an existing tuberculosis of this kind. In these cases, however, the normal continuity of the

pregnancy is interrupted by the disease, miscarriage or premature labour taking place. On the other hand, it is possible for a genital tuberculosis to develop during a pregnancy, or for an existing tuberculosis to remain latent during the pregnancy and to break out violently during the puerperium, with a rapidly fatal result. We may therefore say that just as supervening pregnancies influence injuriously tuberculous disease altogether, so they do genital tuberculosis. The obvious conclusion is that in tuberculosis of the genital organs pregnancy must be avoided. If the question of marriage in connection with a woman so suffering should arise, the medical consent can be given only if a sufficiently long observation warrants the assumption that healing is taking place, or if the prognosis is such as not to preclude the possibility of conception.

As regards cancer, the fact is generally admitted that more women suffer from cancer than men, and of all the cases of cancer in women put together, no less than a third occur in connection with the uterus. The most important question from the standpoint of marriage is, naturally, whether cancer is transmissible from person to person. A number of observations appear to favour this theory of infectiousness, and there is every justification for the recommendation that all articles used in connection with the nursing of cancerous patients should be thoroughly disinfected.

As far as cohabitation is concerned, it is only rarely, and in the later stages, that cancer forms an obstacle to the same. Otherwise, and especially at the commencement, there need be no interruption in the marital relationship, and as a matter of fact it is the hæmorrhage caused during or by the sexual act which often draws attention to an existing cancer of the genital organs. Such cohabitation-hæmorrhages are, therefore, an important diagnostic sign.

It is clear that cancer of the genitals must have a deleterious effect on the propagative faculty, though when the disease is in its beginning and there is no profuse dis-

charge there is no absolute reason why conception should not take place. Thus, for instance, one author has seen in 1,034 cases of cancer patients pregnancy occur twelve times. *Vice versâ*, often-repeated pregnancies seem to favour the appearance of cancer. It is certain that genital carcinoma is much more frequent in women who have borne children, especially more than one.

In a case where pregnancy and cancer occur together it is not always easy to say which arose first, the cancer or the pregnancy. The observations recorded in literature make it appear that in the majority of cases the carcinomatous disease existed before the beginning of the pregnancy. It may also be regarded as certain that, with rare exceptions, pregnancy and childbirth exercise an exceedingly unfavourable influence on cancer, and cause the disease to spread very rapidly, in some cases with quickly fatal results.

On the other hand, the effect of cancer on pregnancy and childbirth varies according to the extent of the disease, and also according to its situation. In some cases the pregnancy takes its normal course without any interruption or sign of disturbance, but this is the course of events in the minority of cases. As a rule, the generative processes undergo under the influence of cancer a very unfavourable modification. In about 30 to 40 per cent. of the cases miscarriage or premature labour takes place. During the puerperium, too, most alarming aggravations may occur, and death may ensue from exhaustion or other complications.

The treatment to be adopted in cases of cancer complicating pregnancy varies according to circumstances. Sometimes an operation is required immediately the disease is recognised, and no waiting is permissible. But, of course, a great deal depends on the decision of the patient or her friends, who may prefer to wait in any case, say for religious reasons, it being well known that the Catholic Church condemns unhesitatingly the destruction of the fœtus *in utero* with the object of saving the life of the mother. In other cases it

may be too late to expect any useful result from an operation, and then full regard must be paid to the life of the child.

There is another disease which attacks a large number of women, though in many instances without causing them any noticeable complaints—namely, myoma of the uterus. In the opinion of many this affection is present more in virgins than in married women, and it is also believed by various authors that an important part is played in the causation of the illness by the interrupted mode of sexual intercourse. Myoma is seldom an obstacle to cohabitation, and here also the latter frequently gives rise to hæmorrhages or to an aggravation of the pain. Upon conception myoma need not necessarily exercise any unfavourable influence, but, as a matter of fact, sterility is frequently associated with myomatous disease. Opinion is somewhat divided on the question whether myoma is a cause of sterility or not, and even if it be true that no such connection exists between the two processes as regards absolute sterility or one-child marriages, the influence of myoma cannot altogether be denied as far as later pregnancies are concerned.

Respecting the effect of pregnancy on an existing myoma, it may be said, on the whole, that it is unfavourable, as the tumour generally increases in volume. *Vice versâ*, myoma has no such unfavourable influence on pregnancy in the majority of cases, and the labour stage is reached without any trouble. In numerous cases, however, that influence is unfavourable and momentous. Thus, miscarriage or premature labour happens occasionally, and at other times complications occur which render an immediate operation absolutely necessary. The labour itself is in the majority of cases not affected by the presence of the tumour, but the mechanical obstruction is sometimes so great as to make the passage of the child very difficult or even impossible. In the lying-in period, the tumour, if it grew during the pregnancy, generally returns to its previous dimensions, and sometimes it even diminishes further still.

For these reasons it is no longer usual to interrupt the pregnancy artificially on account of an existing myoma, but to wait patiently for natural labour to set in, unless there are special reasons for adopting a different method of treatment.

There remains yet to mention that a number of observations exist which tend to prove that myoma is hereditary, and subject to a sort of family predisposition.

As to whether a woman with myoma may marry or not, that depends upon the circumstances of each individual case, and no general rules can be laid down.

With reference to ovarian tumours, the question whether marriage exercises a promoting influence on their development or not has been much discussed, with, as yet, an unsatisfactory conclusion. On the other hand, it is regarded as established that ovarian tumours do not render conception and pregnancy impossible, even if both ovaries are affected, but the reciprocal influence which the processes exercise upon each other is, as a rule, very unfavourable. Fortunately, the complication is rare. With regard to hereditary predisposition to ovarian tumours we know very little. A woman with ovarian tumour should not be allowed to marry, if only for the reason that about 25 per cent. of the cases are malignant. But even benign tumours may at any time create conditions dangerous to life. After the removal of the tumour by a successful operation there is no reason why the marriage should not take place, if the woman in question has been cured of her complaint. In cancer of the ovaries marriage is not permissible even after a successful operation, seeing how frequently relapses occur. When both ovaries have been removed by an operation and the tumours were not malignant —that is, if the woman is now healthy, but deprived of her conceptive faculty—marriage is permissible only after making both parties fully acquainted with the real state of affairs.

XXI.

DISEASES OF THE NERVOUS SYSTEM IN RELATION TO MARRIAGE.

By PROFESSOR A. EULENBURG (Berlin).

Nervousness and Neurasthenia.

It is immaterial whether nervousness and neurasthenia, which are, at all events, closely related, are congenital forms of perverse reaction to the irritants of the outer world or whether nervousness is an acquired anomaly in contrast to neurasthenia, which is a congenital morbid weakness of the nervous system resting on a hereditary predisposition. In point of fact the nervous or neurasthenic individual possesses, according to the extent and severity of his illness, a more or less insufficient nervous psychical equipment for the duties and objects of married life, or he even lacks completely and under all circumstances the indispensable adjustability to it. If the peculiarities of the nervous neurasthenic condition are often capable of causing serious disturbance in all the relations of the sexual life as such, this applies to a particularly great extent to the tenderest, most intimate, and, at the same time, internally and externally firmest of all the intersexual attachments, namely, the married state. And it is the nervous husband no less than the nervous wife, although different physiological and psychological influences are in each of them at work, that is unsuitable from the standpoint of marriage.

Common to, and alike in, both of them is first of all the absence of the already-mentioned adaptability, which con-

stitutes the preliminary condition and fundamental requirement of marriage. They are both of them more or less incapable or unwilling to control themselves, to keep in check their morbid inclinations, disinclinations, good and ill humours; each of them cannot or will not render to the emotions and feelings of the other partner that amount of regard, fond sympathy, and consideration, or even of just and proper appreciation, which makes it possible for two different individuals who consider themselves entitled to the same privileges to live harmoniously together. Such marriages can consist only of masters and slaves, oppressors and oppressed, of the dearly bought and patiently borne sacrifice on the one side or of misery on both—at all events, they are nothing but a caricature of conjugal intimacy, a grotesque copy of the reciprocal devotion of married life.

Those who know the passion-stories of such neurasthenic marriages know that these sufferings often begin on the very day the marriage is consummated, and sometimes even long before that. The hypersensitive, weak-willed neurasthenic frequently finds it wellnigh impossible to make up his mind to get married. Then there is the subsequent determination to adhere to the decision taken or forced upon him in spite of constant doubts and fears. All this tends to make what should be the happiest days of one's life a terrible and often unbearable episode. In my own practice I have often enough had to treat neurasthenics who only felt relieved of a great burden and, one might almost say, became men again when they had broken off the engagement to marry into which they had hastily entered, and given back to themselves and their fiancées their previous 'freedom.' There is no doubt that a not insignificant number of broken-off engagements are due to the whims and fancies of neurasthenics, who discover only after they have plighted their troth that they have undertaken responsibilities the fulfilling of which is physically and psychically far beyond their powers, even if they do not, in addition, belong to the special subcategory of 'sexual neurasthenics.'

Not infrequently this 'solution' is preceded by a disconsolate hesitation hither and thither, lasting for years, because the individuals in question (the blame lies in most of these cases on the side of the man) have not the power either of fulfilling their promise or of summing up the courage to withdraw demanded by the circumstances of the case; they torment themselves and their intended partners from a distance or during occasional interviews in a most exasperating manner, by speech and in writing. In those cases where this solution does not take place, where the marriage is after all consummated, either in consequence of the vacillation of one of the parties or through the firmness of the other, or thanks to the persuasive powers of friends, or for external reasons, etc., it generally turns out most unhappy, and, indeed, it cannot do otherwise. For the neurasthenic remains after his marriage—at least, in the majority of serious cases—what he had been previous to it: only very rarely does married life exert any considerable beneficial influence, such as hopeful optimists too often dare to anticipate.

In the particularly severe cases, which represent, fortunately, an extreme form of the disease, the matter may end differently and vastly more alarmingly. We read and hear sometimes of suicides committed by prospective husbands—belonging, as a rule, to the upper classes—on their wedding-day, figuratively and even literally 'on the threshold of their bridal chamber.' Such apparently quite unintelligible acts are, as a rule, explained away by the conventional and convenient 'attack of sudden mental aberration' (perhaps on account of the eagerly and violently anticipated married bliss?), which induced the unhappy man to lay hand on himself. Those medical men who have stood near such cases know, however, that they refer almost always to highly strung neurasthenics who cannot think of another way of escaping from their unavoidable feelings of terror, their repentance, their self-reproaches and severe anguish, and who prefer the peaceful rest of the grave to the (to them) prob-

lematic 'joys' of the bridal and conjugal bed. It is probable, though, as far as one can judge, that sexual motives nearly always play a part in these cases, such as, for instance, a fear of impotence, here and there also (supposed and real) homosexuality, so that we find herein the transition to the particularly frequent, and in their conjugal consequences especially tragic, forms of the typical 'sexual neurasthenia.'

Sexual Neurasthenia.—The object, or at least the physical essence, of marriage is in sexual neurasthenia far more interfered with than is usually the case in the other localized (special) forms of neurasthenia, or in its general manifestation. This applies particularly to the sexual neurasthenia of the husband, in whom the symptom of the neurasthenic weakness of the virility, or 'impotence,' prevails in the great majority of cases as the one which predominates over and determines the whole clinical picture, whilst the other local symptoms, such as the disturbances in the genital sensibility, the morbid erections and emissions, etc., recede considerably in constancy and importance as compared to this principal symptom.

There is hardly one among the large number of sexual neurasthenics who does not feel his sexual virility altered in the sense that it is getting weaker, and the majority of them are perhaps induced only by these sensations and the fears associated with them to seek medical advice. On closer examination, however, this supposed weakness of the virility reveals itself frequently as a morbid alteration in the sexual desire, inasmuch as the latter is deficient, absent, or abnormal in a qualitative sense, directed into 'perverse' channels. These radically different conditions of the altered sexual desire and of the weakness of the virility are very often mistaken for each other, whereas they ought to be kept strictly apart. However, the importance of the absent or suspended desire (in the husband) is from the point of view of marriage by no means to be underrated.

As regards the special forms of the disturbances of the virility in neurasthenics, only very few cases present severe functional disorder of the mechanisms of erection and ejaculation in such a manner that the latter act differently and decreasingly either as to quantity or quality. This is, for instance, the case in the comparatively frequent anomaly of premature ejaculation (ejaculatio præcox), which is well known and decried as an early stage of commencing impotence. In this condition it is possible either for erections to occur without subsequent ejaculation, or for ejaculations without erection. If the two functions are simultaneously affected the result is flaccid, insufficient, and non-persistent erections —which disappear finally altogether—accompanied by scanty and afterwards entirely absent ejaculations.

But these forms, which denote a severe end-stage of pronounced exhaustion, are usually preceded by a state of irritable weakness in the genital apparatus which manifests itself by premature ejaculation. The number and extent of the potential disorders occurring in sexual neurasthenics are not, however, by any means confined to these manifestations; there are, besides, further alterations caused by the action of psychical factors which correspond to the conception of neurasthenia as a neuropsychosis. It is from the frequency and intensity of the psychical correlations that we can explain how it is that we often have to deal in neurasthenic forms of impotence principally or even exclusively with the so-called psychical (psychogenic) impotence. The cause lies mainly in the inhibitory influence which neurasthenic illusions and fears exercise upon the action of the erection mechanism, and further upon the accompanying discharge from the seminal glands. But these inhibitory representations, produced by certain disinclination-feelings, can be either of a more general kind or limited mainly to quite special, and often only temporary and passing, single moments connected with some single event. Where this is markedly the case we can in this connection speak of so-called 'relative' and 'tem-

porary' forms of impotence, which are at the same time always also of a psychogenic nature. This explains the fact why impotence is present only under certain conditions, or in certain circumstances (for instance, in the natural form of sexual intercourse, but not in unnatural modes of sexual gratification), or with respect to certain persons (for instance, as is frequently the case, in attempted intercourse with the wife, but not with a mistress)—'relative impotence'; also, why the virility fails at times entirely, whilst at others there does not appear to be any or but very little diminution in that direction—'temporary impotence.' Relative and temporary impotence correspond frequently to early stages of cases which in their further course and development may lead gradually to absolute and permanent psychical impotence. But that those apparently milder forms of impotence which are in themselves not unamenable to improvement and cure may also assume in the married state particularly a very considerable importance, and give rise to lasting disturbances in the happiness of the married life, hardly needs many words to prove.

With regard to the female sex, the phenomenon analogous to the diminished or absent desire in man is the diminution in the sexual sensation altogether, and this manifests itself not only by the absence of the desire, which, as it is, is generally weaker and tardier in development than in the male sex, but also and principally by an absence of the pleasurable feeling during coitus, by the failure of the 'orgasm.' These conditions are generally designated as frigidity, anaphrodisia, sexual anæsthesia, or as 'dyspareunia'; in reality, however, they constitute genetically and symptomatically widely separate anomalies, and only those can be included in the domain of sexual neurasthenia in which there is a question, from the beginning, of irritable weakness in the region of the genital nervous apparatus and of inhibitions proceeding mainly from psychical causes (neurotic anxiety of a purely sexual nature). In this connection painful local affections,

as well as previous violent pain or disinclination associated with sexual functions, can by their reappearance and combination with representations referring to sexual intercourse act disastrously as anxiety-producing factors. A very characteristic illustration of this condition is furnished by the picture of 'vaginismus,' which is by no means rare in young married women, and in which a morbid hyperæsthesia exists or is developed after the defloration and after awkward and impetuous first attempts at coitus, and is associated with reflex spasms in the muscles, constricting the vaginal entrance and the upper portion of the vaginal canal, rendering thereby successful cohabitation impossible. In the further course there appear not infrequently severe nervous general symptoms, with such an extreme feeling of terror and such a pronounced aversion against every renewed attempt at conjugal approach that the latter must finally be discontinued altogether, thus defeating not only the physical object of marriage, but causing in many instances the dissolution of the conjugal ties. On the other hand, it is happily often possible by an opportune interference and by discreet and tactful treatment, partly of a local nature and partly directed towards the general nervous condition, to obtain in these cases a removal of the obstacles to cohabitation and conception.

There are naturally other factors as well which produce in woman a state of absent pleasurable feeling (anaphrodisia) or a sort of torpor in sexual respects. There is, like the psychogenic impotence in man, a sort of psychosexual anæsthesia in woman, which arises by no means always on the strength of primary local diseases, but rather often on a neurasthenic, and just as often on a hysterical, or on a constitutional and neuropathic basis consisting of these two; the border-line between neurasthenia and hysteria is in woman generally far less sharply defined than in man. In woman, too, there are conditions of psychosexual hyperæsthesia and anæsthesia which may be designated as 'relative' and 'temporary,' from the analogy of the corresponding forms of male impotence;

thus, for instance, if a woman experiences pleasure and orgasm from intercourse with her lover, but not with her husband, or when she finds delight in certain abnormal acts of sexual gratification, or only at certain definite times (during the menstruation period). Those cases are naturally the worst in which diminished virility, premature ejaculation, or coolness on the part of the husband is accompanied by sexual hyperæsthesia or anæsthesia, by sluggish or absent orgasm in the wife, so that the latter remains ungratified in every way; from such combinations there may result under certain circumstances the most serious discords and conjugal calamities of the severest and most disastrous kind.

The question now arises—What should be the attitude of the medical man in regard to the contraction of marriages by nervous and neurasthenic individuals, as well as in the presence of such individuals already married, or, if necessary, on the question of their separation?

It is clear that it is just as impossible here to lay down general rules of conduct as it is in other illnesses; every individual case must be considered and judged on its own merits. Nervousness and neurasthenia can in themselves constitute elements favouring and favourable to marriage, just as they may at other times render it imperative for the medical man to oppose the whole weight of his authority against the contemplated step. And then it is, as a rule, not very material whether we have to deal with congenital and inherited constitutional nervous debility ('neurasthenia') or with 'nervousness' which has been acquired earlier or later. Apart from the general problematic character inherent in this distinction, daily experience shows that the forms of functional neurosis which arise after accidents, and which can therefore be described as having been 'acquired' late, are just those which as a rule distinguish themselves unfavourably by severity and obstinacy and a generally unsatisfactory course of the disease. The medical opinion does not, therefore, depend so much, as it often seems to be assumed, upon

the presence or absence of a congenital or possibly inherited family predisposition, etc., but rather upon the degree, extent, and severity of the disease, upon individual factors, such as temperament, character, occupation, and social position, and often, of course, also upon the pecuniary means, the willingness and the patience to undergo a suitable mode of life and a rational course of treatment. This applies in a special measure to the sexual form of neurasthenia, particularly in man (as in woman this form of neurasthenia is before and outside the married state only exceptionally recognised, and treated accordingly). In such cases, and where there is a tendency to neurasthenia at all, some doctors still adhere to the erroneous and not infrequently disastrous view that marriage as soon as possible is a valuable prophylactic measure. This is particularly the case as regards habitual masturbators, among whom, as is well known, neurasthenia is very prevalent. With this opinion I cannot, on the strength of an experience which I have reason to believe is exceptionally wide in this field, concur. Only after a minute inquiry into the conditions and character of both parties can the marriage of a neurasthenic individual be permitted, but under no circumstances must matrimony as such be praised and encouraged as an effective remedy.

But where, as it frequently happens, such marriages are concluded nevertheless, they will during their course often present to the keenly observing doctor who possesses the confidence of his patients opportunities which will justify or even necessitate his interference as friend and adviser. Sometimes he will come across clumsy husbands or inexperienced young wives—it must not be forgotten, though, that there are also inexperienced husbands, and these are almost the worst!—and it will be his duty to instruct them on the sexual-hygienic conditions, possibly even on the technique and the mode of performance of sexual intercourse, and to impart to them the necessary information applying to their individual cases. Sometimes he will have to offer cheering

and encouraging suggestions, at other times to calm and pacify one or the other of the married partners, now and again to recommend mutual tolerance and considerateness, and to act generally as a reconciler and peacemaker. Regarded as a neutral person and almost as a creature without sex, the doctor cannot escape playing in modern marriages the rôle of a father-confessor of former times—as Tolstoi reproaches him in the 'Kreuzer Sonata' rather coarsely and unjustly! He is hardly in a position to extricate himself altogether from the responsibilities arising in this connection; but, on the other hand, he needs a great deal of tact and cautiousness, so as not to incur any blame, and particularly must he be careful in the case of jealously disposed husbands not to give them cause to suspect that he is carrying on an intrigue with the wife—a suspicion which can easily take root and lead to most serious results, as has frequently been known to happen in paranoics, whose jealous mental fabrications may develop into a regular jealous mania. Finally, the doctor can scarcely refuse his assistance, as far as his position permits or compels him, in obtaining, where such a neurasthenic marriage has through the fault of one or both of the partners become irreparably shattered, the proper legal dissolution, in which case he must say to himself that he is doing a good and useful deed, and that an 'end with terror' is here also better than 'terror without an end.'

Hysteria.

The view that local diseases in the generative organs of the female may give rise directly or reflexly to hysteria—an opinion which has to some extent prevailed since the remotest times almost with undisputed authority—is now shared by very few medical men.

The origin of hysteria, like that of the other great neuroses (neurasthenia, epilepsy, etc.), necessarily depends upon the presence of a neuropsychical constitutional weakness or con-

stitutional anomaly, the basis of which is, as a rule, a congenital predisposition of the central nervous system, or of its functionally most important portions. More rarely hysteria is acquired later in life through special injuries which affect the nervous system in a severe manner (accident-neuroses). On the other hand, the outbreak of morbid processes belonging to this class is naturally often influenced also by the state of other organs in the body. As regards the female generative sphere, for instance, this takes place by way of psychical representations connected with the sexual organs which give rise to abnormal manifestations. There is consequently a sexual hysteria, just as there is a sexual neurasthenia, and included in this category are probably very many cases of hysteria which develop during the married state, or in consequence of the peculiar physical and psychical conditions of marriage.

Regarding this relationship between hysteria and marriage we have to take into consideration two points of view—namely, the influence which marriage itself possibly exercises upon the origin of hysteria, or, at any rate, upon its becoming manifest, and the influence which an existing and highly developed hysteria visibly exerts upon the course of married life, upon the manifold phases of the conjugal drama.

As to the first point, all those injuries, physical as well as psychical, which are directly or indirectly associated with the married state may constitute causal or provoking factors. Of these, the psychical ones are probably unequally more important. Various circumstances come here into play; besides direct roughness and brutality, which are, after all, comparatively rare, we come across physical and moral awkwardness or inexperience, the result of which is want of gentleness and tact on the part of the husband, who does not understand, or who considers it superfluous, that the woman handed over to him must be gradually educated to a sensual feeling and joint gratification. This inexperience, or this want of tact and understanding, which arise as a rule from

a regrettable misjudgment of female feelings and sensitiveness, from a pyschological helplessness in the presence of a woman, make themselves felt, of course, not only at the beginning of the married life, but very often also subsequently in connection with its sexual relations, so that to a certain extent there is some truth in the assertion, highly exaggerated though it be, that 'the great majority of severe neuroses in women have their origin in the conjugal bed.' We can at any rate admit its justice if we apply it not merely to the 'psychical traumata,' but also to the physical dangers immediately associated in numerous cases with sexual intercourse, such as painful hurts, injuries, infections, and the secondary effects of all these conditions on the nervous system.

At all events, there remains the circumstance that the psychosexual factor plays an extraordinarily important part in the production and provocation of hysterical processes, and that uncommon significance attaches from a prophylactic standpoint to a more or less adroitly and carefully conducted education of the female sex in sexual matters. For, as we shall soon see, a deficient or absent sexual sensation, or one which is directed into abnormal channels, as is often the case with hysterical people, can also endanger most seriously the happiness and harmony of married life.

In this respect great mistakes are often committed in the education of young girls by telling them either too much or too little at the wrong time or in the wrong place, and in a wrong, non-discriminating manner. The beginning of puberty, the first, only slightly noticeable, indications of the awakening sensuality, demand in growing girls, even more so than in boys, far more serious attention than parents and educators are as a rule wont to devote to them. Sensuality as a sexual feeling is in normally constituted children quite dormant; it only separates itself more distinctly from the complex of loving and respectful feelings which the soul of the child experiences towards those to whom it stands in intimate relations simultaneously with the development of the sexual organs

themselves. Just at that time it is therefore very important in what manner the sexual life is awakened from its sleep, and how the still half-child-like confined soul is enlightened, both with regard to itself and with regard to a world of feelings which are new and unknown to it. A great deal of attention has recently been given at meetings and congresses to this subject of how the young should be informed on sexual matters, but unfortunately it cannot be said that the opinions expressed on those occasions have distinguished themselves by lucidity, or even that they were only to a certain extent clear. Scholastic authorities will in many cases have absolutely nothing to do with such instruction (and least of all in the case of girls); nor are fathers and mothers less opposed to it, either because they feel how incompetent they are to undertake such a duty, or because they have an objection to robbing the innocent maiden's soul of its sweet simplicity—a fear which is in many cases quite superfluous. It must be admitted, though, that the task is by no means easy of execution, and at all events capable of being carried out individually only; but, then, one would think that one has a right to demand from parents and educators that they should be intimately acquainted with just this individuality of the children in their charge. There are youthful characters who can absolutely dispense with such teaching, who seem to know more than is good for them, and in whose cases a similar experience awaits the carefully proceeding teacher as that which befell the methodical father 'Biedermeier,' who was trying to impart to his daughter the secrets of sexual life by means of the anthers and pistils of plants, and to whom the blushing maid whispered in reply: 'Gewiss, papa! Es scheinen sich im ganzen, Auf gleiche Art *wie ich's vom Menschen weiss*, Die Blumen offenbar und Tiere fortzupflanzen.' (Of course, papa! It seems, on the whole, that flowers and animals reproduce themselves in a similar way *as I know it to be done by human beings.*)

On the other hand, there are differently constituted natures

whom one cannot handle too carefully, and from whom it is necessary to keep as far as possible everything that might further the awakening sensuality, not only at the time of the commencing maturity, but also for a long time afterwards. For this reason greater attention than is generally done ought to be paid to the books read by young people. But this should by no means be done in a one-sided manner—that is, not everything which might act as sexually 'enlightening,' and therefore necessarily, according to a preconceived absurd notion, excitingly, must under all circumstances be absolutely condemned. Over-cautious parents and governesses have been known, under this pretext, to keep from their grown-up daughters or charges even such literature as the 'Nibelungen lied' and 'Gudrun,' 'Don Carlos' and 'Faust.' On the contrary, it is the silly stuff which describes all the conditions of life in wrong and ridiculously exaggerated colours, and which forms the staple literature of the growing youth, that must be discouraged by every possible means. It is by reading this trash that girls principally form an extravagant, senseless, and unfounded opinion of men, which they take along with them into their subsequent everyday life, and which gives rise to pseudo-ideal expectations that are often the cause of hasty and sad marriages, as well as of disastrous disappointment in married life.

The husband is, therefore, often enough (and often innocently) the cause of his wife's hysteria, or, at least, partly responsible for it. She may have married him without love, from selfish motives, out of pity, or 'chosen' him for some reason or other. He may not be coming up to her ideal; she may have thought him different or seen him through a dream, and now, being disappointed, she may consider herself deceived, which, perhaps, she is in fact. He may not command her respect, may not understand her, may not do enough for her, may not look after her sufficiently, may become in the course of time quite indifferent about her, as she is, perhaps, about him—all this and much more like it may break out at

the first opportunity, and become the provoking cause of severe hysterical phenomena, of single attacks or of a permanent manifestation of hysteria. Physical causes may contribute their share, and add to the indifference or dislike, so that both sides no longer derive anything from the conjugal act—at any rate, not gratification—which, however, they find, perhaps, in illicit intercourse. The further consequences as regards the husband have already been mentioned; as to the hysterical wife, she often has recourse to seduction by 'another' (which means a lover), in some cases to the adoption of other no less undesirable means of sexual gratification. The hysterical wife is first *femme incomprise* and then *femme adultère;* and the unfaithful wife is often at the same time hysterical. For the hysterical wife not infrequently becomes unfaithful, not from erotomania, but in order to experience a new sensation, to excite and occupy her senses and her phantasy, to punish her husband, or she does it out of mere capriciousness, from absence of will-power and from all sorts of dark motives which fall into the region of the unconscious, but which are somehow connected with the psychosexual abnormality.

But hysteria may have a calamitous effect upon the course and issue of a marriage from an almost contrary cause as well —namely, if it is, as frequently happens, accompanied by a defective sexual sensation (sexual anæsthesia, anaphrodisia, dyspareunia), or, if the latter constitutes an important symptom, a part manifestation of the hysterical affection. Such sexual anæsthesia may, like the impotence of the husband, become a source of conjugal strife and collapse, either because the husband tires of his wife's passivity, which hurts his self-love and reacts injuriously on his desire and virility, or because the anæsthesia is—and this is frequently the case—accompanied by sterility, of which it is regarded as the cause, and condemned accordingly.

The physician is in the presence of these conditions not quite powerless. He can often interfere beneficially and help-

fully by instituting the necessary treatment, and by furthering and reviving the declining affection between husband and wife through suitable words of advice. In fact, it is almost surprising that so many marriages of hysterical persons last until their natural end, and are not dissolved long before that. But it would seem as if Nature has happily endowed the generality of husbands of hysterical women by way of compensation with so much placidity and meekness, such self-deception, and, above all, such unmanly patience, that they appear as if predestined for their severe ordeal, which they often endure so bravely as to call forth the wondering admiration of their sympathizing friends and medical advisers. But such hysterical marriages can sometimes result in catastrophes of the worst kind. I only need recall the well-known case of Dr. P.'s wife, whose attempted murder of her husband (prearranged in a hysterically stupid manner) about ten years ago created an unparalleled sensation all over Berlin.* The poisoning of husband and children by hysterical women is by no means rare. Among other cases, I acted as medical expert in one, where a hysterical mother belonging to the better classes, in a moment of impulsive excitement, killed first her ten-year-old son with cocaine, and afterwards attempted unsuccessfully to take her own life by means of the same poison. That hysterical women are on the whole bad mothers, and that they do not know how to bring up their children; that they are, in consequence of the changeableness and capriciousness of their nature, capable of spoiling them by the stupidest over-kindness, or of ill-treating them most cruelly, is such a well-known fact that there is no need for dwelling upon it here. That the children of hysterical mothers should, in view of the hereditariness of the neuropathic predisposition and in view of the conditions

* In another similarly unhappy hysterical marriage-tragedy which occurred in Berlin society circles, the recently announced suicide of Mrs. H., after a separation pronounced a long time ago, formed the sad conclusion to the drama.

among which they grow up, and of the consequently wrong education, frequently be subject to hysteria or other neuroses and neuropsychoses is only what can reasonably be expected.

But, on the other hand, care must be taken that we do not go too far in the condemnation of the marriage of hysterical women. It cannot be denied that many such marriages have turned out favourable against all expectation, and proved to the medical warners agreeable disappointments. The provoking cause of the hysteria is in such cases, according to my experience, as a rule some sad family trouble, from which the persons concerned were in time extricated by marriage, and placed under material circumstances of a more favourable character.

Epilepsy.

There is hardly another disease of the nervous system, no matter how serious, which is so inimical to, and so destructive of, the physical and, as a rule, also the psychical relations between husband and wife, and consequently the married state altogether, as epilepsy.

Those belonging to an older generation, who have in their school-days or adolescence devoured Eugène Sue's at that time highly famous 'Mystères de Paris,' will never efface from their recollection the terrible description of that first night's scene in which the young husband is seized with an epileptic attack, and the solitary existence which the newly wedded wife was henceforth doomed to lead. The narrative is hardly overdrawn. I know quite a number of cases—though mostly of an opposite kind, that is, where the wife, and not the husband, was the party affected—in which the accumulated excitement of the prenuptial period discharged itself either on the wedding-day or during the wedding-night, or even during the subsequent days while on the honeymoon trip, in the form of violent and severe epileptic attacks, which, being absolutely unsuspected and unforeseen by the other partner, caused to the latter such an unconquerable fear and

shock that they were necessarily at once followed by an immediate inward, in some cases also by an outward, dissolution of the marriage. Where the outward signs of the matrimonial union were preserved, so as to avoid talk and scandal, there was, as a rule, from that moment no vestige left of an inner and genuine affection ; there was even no show of compassion, and the former love gave way to aversion and hatred—often enough of a reciprocal kind, because the one side could not forgive the 'deception' practised upon him or her through the concealment of the dread disease, and the other, misunderstanding the severity of the illness or, from a comprehensible selfishness, unaware that any blame attached to him or her, would naturally complain more and more bitterly of the indifference and unjust behaviour of his or her partner.

I must, however, observe in this connection that, according to my experience, women are generally more indulgent towards their epileptic husbands than is the case the other way about, and that they know better how to adapt themselves to the circumstances demanded by the occasion. As a matter of fact, I know of a few very happy marriages where the husbands are epileptic—though they are rare—but, on the other hand, I cannot remember a single one where the wife is affected with epilepsy. This is, on the whole, probably due to the circumstance that in women the impulse to help and to relieve which springs from the depth of their motherly sympathy, and which finds its greatest opportunity round a sick-bed, and also the strong development of the sense of compassion, enable them to overcome even the repugnance against the terrible manifestations of epilepsy with greater ease than can be done by the generality of men, on account of their natural disposition. Besides, a man is far more likely to be deterred from cohabitation with a wife suffering from epileptic attacks than, *vice versâ*, a woman with an epileptic husband. Men are, as we must readily admit, harder and more impatient ; they endure the evils of ordinary life with greater

difficulty and less forbearance, and they find it consequently especially unbearable if unpleasantnesses and injuries, not only of a domestic character, but also of a social nature, and affecting their material position, arise to them because of the epileptic disease of the wife.

Epilepsy which shows itself in the form of attacks of semi-unconsciousness presents in this respect the gravest outlook and the greatest dangers. It is well known that in patients so affected violent outbreaks may occur at any time, which result in attempts at suicide or murder against the other partner or in other criminal acts. But even where there are no such scenes of violence, every social intercourse is rendered very unpleasant, if not impossible, partly by the peculiarity of the epileptic character, with its irritability and possible sudden outbursts of rage, and partly by the constantly present dread of the occurrence of convulsive attacks.

Only recently I attended an officer's wife who was suffering from epileptic semi-unconsciousness, and to whose husband the alternative was necessarily given by the commander of his regiment, either to resign his commission or to separate from his wife, because the latter had not only, in consequence of her peculiar character, seriously insulted several ladies of the circle, but had also at a party given at her residence aroused the greatest indignation of those present by her unmentionable conduct. In another case referring to the wife of a civil engineer the patient had in her semi-unconscious state several times spent the whole night away from home, wandering about and giving way in a most unrestrained manner to her erotic impulses; divorce became here absolutely unavoidable.

As a counterpart I wish to mention the marriage of a medical man—since deceased—which passed off without any trouble, although he suffered from rare—but on this account more violent—attacks of epileptic semi-unconsciousness, during which he used to fall into such a rage as to take hold of an axe or a knife and threaten everybody, so that the non-occurrence of calamitous catastrophes may be regarded almost

as a miracle. All this was carefully concealed, and the sufferer himself was kept in total ignorance. A woman's love can under such circumstances show far greater strength than that of a man.

But apart from the danger arising to the moral side of the married state from epilepsy in the husband or the wife, there are also physical dangers of an enormous character. There is first the fact to reckon with that in epileptic women pregnancy and childbirth have a most deleterious influence on the nature of the disease. Not only do the ordinary attacks become more frequent during pregnancy, but often severe symptoms, absent at other times, also make their appearance, especially some which belong to epileptic insanity. This, again, in its turn, is often the cause of miscarriage or premature labour. Then there is the still more important circumstance to be taken into consideration that epileptic fathers and mothers (and epileptic ancestors generally) are apt to transmit to their descendants either epilepsy or some other nervous or mental disease, or a predisposition to such disease. It follows from what has been said, and from the undoubted fact that sexual excitement favours the occurrence of attacks in epileptic sufferers, that not only must the contraction of marriages by epileptics be opposed in every possible way—including legal prohibitions—but that epileptics should as far as practicable be rendered asexual. In point of fact, however, little has as yet been done in that direction, and not even the progressive State of Michigan, which has recently made the marriage of insane persons and that of individuals suffering from syphilis and gonorrhœa in an active stage a punishable offence, has dared to go so far as to include epilepsy in the same category. The subject bristles with difficulties, and it must be admitted that not by the most radical interdicts of marriage, not by the most impossible and most unreasonable prohibitions of all sexual intercourse by and with epileptics, can we hope to achieve the desired object. The evils which we should create would probably be greater than

those which we should avert, and nothing therefore remains to be done but to decide each individual case on its merits, and to endeavour by suitable treatment to diminish the severity of the disease wherever this is possible. It must not be forgotten that under favourable circumstances epilepsy is curable; but as cures are only rarely achieved, the greatest cautiousness is necessary before consenting to the marriage of an epileptic who is supposed to be cured of his disease.

Chorea of Pregnant Women.

This is a nervous affection which does not occur before the third or fourth month of pregnancy, and then more frequently in the seventh and eighth months. It develops either gradually or comes on acutely. In the former case it disappears, as a rule, before or shortly after the confinement; in the latter it may assume a most alarming and even fatal character. Chorea attacks for the first time most frequently women in their first pregnancy, and it is probably influenced in its origin by a predisposition on the part of the nervous system. The dangerous character of the disease is by no means slight. The mortality differs from about 22 per cent. to about 30 per cent., and as regards the fœtus there is also great risk, as miscarriage or premature labour takes place in a large number of cases.

Tetany.

Tetany is an affection consisting of muscular spasms without loss of consciousness, in the causation of which pregnancy and lactation seem to play a certain part. As a rule it appears after confinements, and its effect is less severe than that of chorea. Women suffering from tetany should not suckle their children.

Exophthalmic Goitre.

This affection, which is observed mostly in women and in association with the process of menstruation, has in a number

of cases a causal connection with pregnancy, childbirth, and lactation. From the standpoint of marriage it is further important, as it rests on a congenital and often inherited degenerative predisposition of the nervous system, and is only to a limited extent amenable to successful treatment. The transmission to the offspring takes place as a rule in the female line and rarely in the male. The disease is also frequently associated with other affections of the nervous system, or with mental and other disorders. From the medical point of view exophthalmic goitre is a real obstacle to marriage, but, of course, every case must be judged individually. Exophthalmic goitre in married individuals requires medical treatment, which, if carried out judiciously, presents rather favourable chances, where the material circumstances are not too bad.

Polyneuritis.

Now and then cases of polyneuritis occur in connection with pregnancy, and the cause is supposed to lie in a certain auto-intoxication, though there is generally along with it a certain constitutional (hysterical) predisposition. The cases vary in intensity from very mild forms to very severe ones, which not infrequently end in death.

Diseases of the Spinal Cord.

Of the chronic diseases of the spinal cord which have any bearing on the married state, tabes dorsalis is the most important, since disturbances in the virile power form one of its chief symptoms. Those disturbances may vary between a slight diminution and complete and permanent impotence. In women tabes is comparatively rare, there being one woman to every ten men suffering from the disease. The effect of tabes in the female sex is in some cases sterility, in others delay in the labour process. It is worth mentioning in this connection that a complaint has been described, under the name of 'tabophobia,' which is apt to cause a great deal of

trouble. It has been observed in both men and women, and is in reality a special form of neurasthenic hypochondria, the main symptom of which is an imaginary diminution in the virility and a reduction in the sexual desire. The self-diagnosis of tabes finds support in information from friends and in references to encyclopædias and doubtful pseudo-medical works, particularly if former self-abuse or venereal disease contributes to a guilty conscience.

Other diseases of the spinal cord also give rise, like tabes, to more or less severe impotence, or else to an abnormally increased sexual irritation, accompanied by continuous erections, a complaint known as 'priapism.'

Diseases of the Brain.

Organic disease of the brain—as distinguished from mental diseases in the narrower sense—makes itself evident either by a diminution or abolition of the virility, as well as by morbidly increased erections (priapism), by the disappearance or by a morbid increase of the sexual desire, and by various anomalies and perversions of the sexual sensation. In the female sex the effect is either sexual anæsthesia (anaphrodisia) or a morbidly increased sexual irritability (nymphomania). The combination of organic disease of the brain and pregnancy is one of very great danger. In many cases sudden death has been known to occur during labour.

XXII.

INSANITY IN RELATION TO MARRIAGE.

By PROFESSOR E. MENDEL (Berlin).

It has always been recognised that no other disease shows such a tendency to reappear in the offspring of the sufferer, either in the same form or in another, as insanity, and for this reason one often hears in connection with the subject of marriage the question asked whether insanity has ever been known in the families of the prospective couple. It is therefore clear that heredity plays a very considerable part in mental diseases, and the assumption is that if in an individual insanity appears without some obvious cause, such as disease of the brain, and so on, a certain predisposition to mental disorders must have been deposited in the germ at the time of conception (conceptional direct heredity).

It has also been observed that whereas under ordinary circumstances crossed heredity is the rule—that is, the daughter resembles the father and the son the mother—in hereditary insanity the influence of the mother shows itself principally in the daughter, and that of the father in the son. The daughter especially, who is like her insane mother with respect to constitution, temperament, and character, is relatively most subject to be attacked by mental disease. Altogether the maternal influence in the transmission of the hereditary predisposition is greater than the paternal.

The heredity is called uniform if the same kind of mental disorder appears in the descendants as was, or still is, present

in the ascendants; in this connection it happens occasionally that the uniformity refers to the period of life as well, and that the disease breaks out in several generations at the same age (corresponding heredity).

The heredity is designated as unequal (polymorphous) if the forms vary.

Sometimes the new form arising in the descendants presents some of the features of that which was present in the ascendants, so that peculiar clinical pictures develop. For instance, a periodical insanity of the mother may produce imbecility in the daughter, of a form which shows otherwise unusual periodical exacerbations.

The hereditary predisposition is called transformed if in the place of insanity a general disease associated with an affection of the nervous system appears in the descendants.

If both parents are insane, or only one of them is insane and the other suffering from a disease of the nervous system which experience shows to have a tendency to heredity, the result is a cumulative inheritance which creates often those severe forms of psychosis (hebephrenia) that are either congenital or gradually developed during puberty, and which render the subject of marriage altogether out of the question. Occasionally, however, insanity breaks out in the third decade, and it then assumes, as a rule, a progressive character.

With the exception of those cases in which heredity has produced in the germ such changes that a normal development of the same does not take place, and the child is born imbecile or an idiot, the hereditary tendency to insanity represents in by far the majority of the cases only a predisposition to mental disease. A further injury must supervene to produce disease in the brain, which is rendered less resistive by that predisposition. The fact that not the disease as such is inherited, but only a predisposition to it, explains why in a family in which a hereditary tendency to mental diseases undoubtedly exists one or even two generations escape being attacked, the insanity appearing again in the next generation.

We speak in such cases of an atavistic heredity, or of heredity *per saltum.*

But the hereditary tendency does not remain latent in entire families only; experience teaches—and this is the consoling feature in the dreadfulness which might seize anyone who includes among his ascendants an insane person, perhaps some 'crazy' aunt—that only in a certain percentage does the existent predisposition develop into disease proper.

Why the same procreators, one of whom is insane, should beget children of whom one or perhaps two, and very rarely three, are attacked by mental disease, while the others remain healthy, and perhaps endowed with extraordinary mental faculties and great mental resistiveness, is a question for the answering of which we so far lack every scientific foundation. Neither do we possess any extensive statistics from which we might be able to infer how great the danger of an apprehended insanity is in individuals who spring from an insane family, how great the number of those who are hereditarily predisposed, and who have yet remained healthy throughout their lives.

But whether the percentage is higher or lower, there can under no circumstances be any doubt that hereditary predisposition plays in the causation of mental diseases a very considerable part, either as a direct cause of insanity (especially as idiocy) or as a predisposing factor of immense importance.

Hereditarians, Degenerates.—But this is not all the danger to which hereditary predisposition subjects the offspring. It happens by no means rarely that although under its influence a mental disease in the narrower sense does not develop, a peculiar temperament, an odd way of thinking, arises, which differs from that of the average normal man. I have distinguished three particularly frequent groups of such hereditarians who present on the whole a large number of varieties.

1. Those who from an early age are dissatisfied first with everything round their own families, and afterwards with the

whole world, who look upon everything as a sham, upon life as not worth living, and in whose eyes suicide is the only correct thing.

They fulfil the duties assigned to them promptly, and very often in a faultless or even excellent manner. Occasionally, however, especially if they are not under proper control, they lose all energy, and long pauses occur in their activity. They almost always make hypochondriac complaints, which exacerbate from time to time; the dreaded spectre of insanity, the actual occurrence of which among their ascendants is constantly haunting them, plays, as a rule, the principal part, and fear and anxiety for the future induces many a hereditarian of this sort to put an end to his miserable existence.

2. Those who show an especial and frequently one-sided aptitude, culminating very early in mental maturity, but who constantly exhibit at the same time, both as to their feelings and ambition, an excessive irritability.

A rash formation of certain plans, an eager wish to carry them into execution, succeeded by just as rapid a relinquishment and laying aside of what had only just been ardently desired, constitutes a prominent feature. Excessive capriciousness, incalculableness of temperament, and impulsiveness of action, are accompanying symptoms.

3. Those who distinguish themselves by their behaviour in society, by their extraordinary habits, their peculiarities, their odd notions and opinions, which they not infrequently advocate and defend most skilfully, while ignoring or acting contrariwise to the views generally adopted. Such individuals are described in popular language as 'originals,' or 'crazy geniuses,' or 'cranks.'

The individuals belonging to these categories have also been called 'degenerates.' They present not infrequently physical signs of degeneration, malformations of the skull, ears, teeth, etc.

In some of the hereditarians phobias or hallucinations occur, or both of these together.

They may attain old age without becoming insane, but they are during the whole of their lives constantly on a balancing-rod, on which they try, not without a serious effort, to preserve their equilibrium. Special occasions which excite them unduly, particularly such as have a depressing influence, can throw them off their balance; the result is temporary, recurring, or permanent insanity.

Here, where the conditions of married life come into special consideration, it is particularly worth mentioning also that in such hereditarily predisposed individuals impotentia generandi, inverted sexual sensation, anæsthesia sexualis feminarum, etc., are by no means rare complications.

In connection with the facts above described, on the relationship between hereditary predisposition and mental diseases, the question now arises: Is there any special danger for a person in whose family insanity has occurred to become insane too? Is this danger so great that marriage ought to be dissuaded from or medically prohibited?

Prohibition of Marriage in Collateral Hereditary Predisposition.—We have to consider first the point, what should the doctor's advice be in those cases in which a blood relation in the collateral line has been or is insane? If we wish to answer the question definitely whether a hereditary predisposition is thereby created, it is necessary to establish in the first place of what kind the insanity of that blood relation was or is. Whether it was acquired through syphilis, alcohol, or some other poison, thus having nothing to do with a hereditary tendency of any sort; whether it was, perhaps, a senile dementia which arose at a very advanced age in an individual who had formerly always been healthy, and which cannot therefore be brought into association with a hereditary predisposition.

Where all these factors can be excluded, there is still the question left open whether the hereditary tendency in the family

has not become exhausted with the insanity of that particular relative.

If we bear in mind further that marriage would become permissible in very exceptional cases only if it were necessary in each individual case to eliminate every possible hereditary factor, we may say that isolated occurrences of insanity in a family do not constitute any obstacle against the contraction of marriages.

But the medical opinion must needs be of a different character, in spite of the normal constitution of the direct ascendants, if a large number of cases of insanity have occurred among the blood relations, and especially if these diseases are demonstrable not only on the side of the father, but also on the side of the mother.

In such cases one may well exclude an accidental coincidence, and admit an actually existent family predisposition; the dangers of the latter may unhesitatingly be described as so considerable either in regard to the person contemplating matrimony or the eventual descendants of the same as to render the marriage unadvisable.

Prohibition of Marriage in Direct Hereditary Predisposition.—Where insanity is demonstrable in the direct line—that is, in the father or mother of the individual contemplating marriage—it is not possible to answer in a general way the question whether the marriage should be permitted or not; here, too, each case requires special analysis of its individual features.

Above everything, we must inquire into the cause and form of the mental aberration.

If somebody who is not subject to the influence of a hereditary predisposition develops a psychosis in consequence of an acute infectious disease, such as influenza or pneumonia, or some other acute intoxication, and if the same takes the form of delirium with hallucinations, acute dementia, melancholia, mania, or acute paranoia, there can be no question of any special danger arising thereby to the offspring. The same

may be said, of course, with regard to those mental disturbances which arise during childbed on other grounds than hereditary predisposition, and also with regard to those which are caused by cerebral syphilis, if the syphilis itself was not hereditary. It is otherwise in those chronic mental disorders which assume the form of paranoia or periodical or circular psychosis, and in which there is, as a rule, such an amount of hereditary transmission on the part of the ascendants as to justify in itself an apprehension with regard to the descendants.

In all such cases the question must further be considered whether the son or daughter whose marriage is in contemplation was conceived before or after the beginning of the illness. I agree with the view that the danger is greater for the offspring if the father or the mother was insane at the time of conception, and not with that according to which the disease of the inheriting descendants sets in independently of the circumstance whether the procreation took place before or after the manifestation of the disease in the ascendant, which means that the predisposition to insanity was already present before its outbreak, and that it must have been communicated to the offspring.

Prohibition of Marriage in Insanity of Father and Mother.—If both father and mother are in a state of chronic insanity and it is not possible to prove—which is indeed highly rare—a coincidence of those external circumstances that have been mentioned above as accidental causes of insanity, the dangers to the offspring appear doubled, and so great that marriage must be decidedly opposed.

Prohibition of Marriage in Progressive Paralysis in the Ascendants.—Special mention must be made here of progressive paralysis, on the one hand on account of its great prevalence, and on the other on account of the special conditions which arise in regard to heredity. As to those who declare the paralysis to be a syphilitic disease of the nervous system, the question whether the offspring of the

paralytics may marry or not will by them be answered mainly according to the principles which apply with regard to syphilis.

But it is not only not proved that general paralysis is a syphilitic affection; there are, on the contrary, weighty reasons against this assumption, and first of all the fact that in about 25 per cent. of all the cases there is no trace of syphilis in the history of the paralytic patients. Hereditary predisposition certainly plays in progressive paralysis no such great part as in the functional psychoses. I have already mentioned elsewhere that, out of 184 cases of paralysis which I personally observed, hereditary predisposition was demonstrable in 34·8 per cent. of the cases, whereas out of 122 cases of functional psychosis the hereditary predisposition was proved in 56·5 per cent.

Others have furnished different figures, which fluctuate within as wide limits as the statements on the percentage of heredity in insanity generally. But even the most ardent supporters of the view that hereditary predisposition plays an active part in progressive general paralysis do not deny that a severe multiple, hereditary taint is not so frequent in general paralysis as in other psychoses.

If a paralytic father or a paralytic mother does not, therefore, constitute a very considerable objection to the marriage with one of their children, there remains the further question to be considered, whether any difference exists between the children who were born before or during the disease of their father or mother.

In this respect it appears that the children whose procreation took place a very long time before the appearance of distinct paralytic signs in the father are more rarely abnormal than those procreated later on, and especially than those born during the disease.

There is, however, another point requiring looking into, which is capable of facilitating the answer to the question whether a paralytic father or a paralytic mother constitutes a marriage obstacle.

In those cases in which an influence of the paternal or maternal paralysis is exercised at all on the mental condition of the child, that influence becomes as a rule clearly manifest at an early age, generally before the twentieth year. It shows itself then either in the form of mental weakness or by the formation of those characteristics which I have described above as signs of degeneracy, and in very rare cases by the appearance of an infantile paralysis. Consequently, in the great majority of cases where the paralysis of the father or of the mother is capable of exercising an unfavourable influence upon the mental condition of the child, that unfavourable influence is already clearly apparent at the time of life when marriage is contemplated, in the form of some demonstrable abnormality. The question of the marriageableness must, therefore, in such a case coincide with the question as to whether mentally abnormal individuals may marry at all. For the rest, it may also be mentioned that a not inconsiderable number of children of paralytic parents remain permanently healthy. In several cases I have been able to ascertain this permanent health of such children up to an advanced age, although they had been conceived and brought into the world by paralytic mothers.

After what has been said, I should sum up my view of the subject to the effect that where there is no considerable hereditary predisposition present, where the father or mother became paralytic many years after the birth of the child, and the latter shows no signs of a mental abnormality, a prohibition of marriage on the part of the medical adviser does not seem to be necessary, I should, however, regard such a prohibition as indicated in every case where the danger is enhanced—that is, where both the father and the mother are or were paralytic.

Dangers to Children springing from the Marriage of Hereditarily Predisposed Individuals.—Our observations have so far dealt, on the whole, with the question whether any and what sort of dangers are involved

in the hereditary predisposition to mental diseases, and how far the same must be regarded as an obstacle to a contemplated marriage in view of the circumstance that the predisposed would-be husband or wife is liable to become insane. But in the cases of this class it is not only the dreaded eventual insanity which must be taken into consideration, but also—and rightly so—a regard for the future, a fear lest the children of the parents in question should be endangered despite the mental capacity of the latter remaining normal.

This danger is especially great if both married partners are under the influence of the same or some other morbid predisposition which is capable of weakening their resistibility, or if the marriage takes place among blood relations, the injurious influences of a hereditary taint becoming in this way aggravated.

The Marriage of Persons formerly Insane.—To answer the question whether a person who has already been insane once, and become cured, may marry or not, it is necessary to analyze carefully the past disease. An accidentally acquired insanity which arose in connection with, and on the basis of, an acute intoxication cannot be regarded as a marriage obstacle, unless that insanity broke out under the influence, and by the aid of, a considerable hereditary predisposition.

In the latter case, and especially in the female sex, the apprehension is justified that, on account of the various injuries which marriage brings in its train, and which, as we know from experience, favour the outbreak of psychoses (childbirth, for instance), a fresh attack may possibly occur.

But if in an individual at about the age which generally comes here into question, namely, the second decade or thereabouts, a psychical affection had existed without any clearly demonstrable outward cause, there is a considerable danger of relapse, particularly because of the just-mentioned injurious influences of marriage.

I should only like to make one exception in this respect,

as regards the female sex, and that is the so-called menstrual insanity. One sees occasionally in young girls before or along with the commencement of menstruation, more rarely immediately afterwards, psychical disturbances which may sometimes last for weeks, and which present as a rule a hysterical character. In these cases the consummation of marriage is generally not only not productive of any special danger, but it frequently brings about an improvement and cure of the abnormal psychical irritability.

On the whole the principle must be adhered to that, if an individual has been psychically ill before marriage, and this psychical disease was not the consequence of external physical influences, but mainly the manifestation of a considerable hereditary predisposition, that individual is unsuitable for matrimony.

We must not omit here to mention that parents sometimes carefully conceal the fact that their child has already had an attack of insanity, or that institutional treatment has perhaps been carried out. They are silent on the point in the hope that the consummation of the projected marriage will have a beneficial effect in warding off future attacks, and for fear that the disclosure of the former illness might prevent the marriage from taking place, and consequently endanger the desired result.

If this hope is afterwards not realized, if insanity breaks out some time after the marriage, and inquiry on the part of the healthy spouse brings the true facts to light, the result is not only a family feud under which the patient suffers severely, but not rarely an appeal to the law that the marriage be declared null and void.* There can be no doubt that the knowledge of a previous mental disease in a person may easily tend to deter one from marrying such a person.

As to the question whether a person insane at the time may contract marriage, the answer is emphatically in the

* See footnote at end of this article.

negative. This applies, of course, also to those forms of insanity which show themselves mainly as feeble-mindedness only.

Even in such cases parents sometimes hope that their children will derive from marriage a beneficial result; with the casual remark 'The boy must marry' or 'The girl wants a husband,' the necessary search for a prospective son-in-law or daughter-in-law is instituted. Severe disappointment, sorrow and suffering, and occasionally most tragic family calamities, are not long absent. After the wedding, which is very often arranged with the greatest speed, the healthy husband or wife soon finds out by the close companionship of the married state what terrible misfortune has befallen him or her, and the result is, frequently enough, that the husband gives way to drink, morphinism, or commits suicide, and the wife, chained, as she finds herself, to an insane husband, is attacked by nervous disease, hysteria or insanity.

Women who marry while mentally affected experience not infrequently, under the influence of the married state, especially under that of pregnancy and childbirth, a considerable aggravation of their condition. They may develop paranoic delusions, the previous mild course of the insanity may change into a severe one, while the lucid remissions or intervals may become shorter in duration and less free from signs of disease.

If an improvement does take place in a few solitary cases during the married life, it is usually of a temporary character only, and is succeeded sooner or later by a further aggravation.

One thing can be said with certainty, namely, that if chronic insanity really undergoes a permanent improvement after marriage, this is so very seldom the case, and such an exceptional occurrence, that no reliance whatever can be placed upon it in connection with a projected marriage.

What has been stated with regard to the prohibition of marriage with an insane individual applies also to such

persons as I have described above as hereditarians and degenerates.

There may be exceptions where a calm and intelligent husband is able to keep within suitable limits the eccentricities of his wife, or perhaps to check them by continuing to a certain extent the education which was neglected in the parental home; *vice versâ*, a sensible wife may occasionally be able so to guide and control her degenerate husband as to prevent the abnormal manifestations from becoming publicly known. But there can be no true married happiness under such circumstances, and especially none of a uniform duration, seeing that the fluctuations in the psychical condition of the abnormal individual which characterize this condition can only too easily upset the balance maintained with great difficulty and by great exertions by the healthy partner, and that often enough acute mental aberrations supervene on the chronic state. As long as marriage is not regarded as a remedy for the abnormal married partner, but as a means for bringing about and furthering the happiness of both sides, marriage with a degenerate is entirely out of the question. There are, no doubt, cases where individuals make it the object of their life to devote themselves to the task of rendering others happy while totally forgetful of their own happiness; under such circumstances the objections against the contraction of the marriage will naturally be disregarded, but then it is the duty of the medical man to emphasize distinctly the apprehensions which exist with respect to the eventual progeny.

But often enough all these intentions to sacrifice one's self, to become the lifelong attendant in sickness of the afflicted husband or wife, must finally be abandoned; the original energy is frustrated by the absence of all success in the attempted object, by the want of recognition and gratitude on the part of the sufferer, by the cheerlessness and hopelessness of the future.

There can be no doubt, and daily experience confirms it,

that where a wrong or imperfect up-bringing in the parental house, where bad company and deficient control, have led a young person, and especially a young man, into devious ways, marriage is capable of exercising a most beneficial effect, provided the other partner is possessed of an energetic and intelligent nature, and has the necessary qualities to assert his or her influence for the good.

The badly brought-up and misbehaved young girl can under the influence of married life become an excellent wife and capital mother; the loose young man a steady husband and respectable paterfamilias. But this fact of the favourable result of marriage must not be generalized in such a manner as to be adapted also to those cases where the deviation from the normal is not due to accidental external causes, but is organically inherent in the individual; in this latter case it does not matter whether the cause of the mental abnormality lay in the embryo, in disease-producing influences during the intra-uterine life, or in processes connected with the labour act or the subsequent existence.

In none of these cases is it reasonable to expect a cure by marriage; the favourable influences of the same are quite incapable of healing the illness or the morbid inclination; the most they can do is to hide for a time the outward and visible symptoms of the disease.

It has repeatedly been pointed out that by the hereditary predisposition, not the disease is as a rule transmitted, but only the tendency to it, and the latter manifests itself chiefly by the diminished resistibility of some organ or other, in this case of the organ of the psychical function.

Where such a predisposition is present, there is required for the production of the disease something besides, namely, an injury affecting directly the general condition or the respective organ.

Under these circumstances it is quite intelligible that, where on account of the conditions prevailing the predisposition has not yet led to actual disease, marriage is capable of con-

tributing its share in preventing the outbreak of such disease by keeping away the injuries coming from without.

If a girl hereditarily predisposed to mental disease is removed from the influence of a predisposed or diseased mother, or transplanted from the surroundings of a nervous family into the hands of a sensible man who can understand the peculiar nature of his wife and treat her accordingly, it is quite possible for the predisposition to remain a predisposition only, and for the disease not to assert itself at all.

But apart from the removal of the psychically unfavourable influences of the paternal home, and their substitution by the psychically favourable ones of the new conjugal home, the unaccustomed physical activity, the assumption of duties hitherto unknown or neglected, have in so far a favourable effect, as the former concentration of all the thoughts round the personal ego, which is not infrequently associated with hypochondriac ideas, gives way under the newly created conditions to a solicitude for others.

Then, again, if the husband who had previous to his marriage led an irregular life in several directions, committing sexual excesses, taking insufficient or unsuitable nourishment, etc., commences, through marrying, to live more regularly in all respects; if marriage means to the wife sexual gratification and the disappearance of former menstrual troubles, and consequently more favourable psychical conditions, it is impossible to deny that marriage is from several points of view calculated to retard the development of the predisposition into actual disease.

In opposition to these beneficial effects of marriage, the latter presents, however, injuries, more especially as regards the female partner, by no means insignificant in number.

In some cases the engagement alone produces a psychosis (sponsalistic psychosis), mostly of a melancholiac or hypochondro-melancholiac character, without there being any reason at all for the depressed mood, the engagement being, on the contrary, a much-desired and longed-for event.

The prospective husband is afraid that he will not be able to fulfil his marital obligations; that he is impotent; that he ought not to get married, as he has rendered himself incapable of sexual intercourse by abuses of various kinds; that, having been syphilitic, he will infect his wife and bring into the world syphilitic children, etc.

This hypochondro-melancholiac condition is not infrequently associated with severe anxiety, with impulses to break off the engagement, and often, above all, with ideas of suicide. Occasionally the dread with regard to the future finishes by pressing the revolver into the hand of the young man, and in a case of my own experience the act of suicide took place during the wedding-feast, the sufferer having up to that moment succeeded in repressing and keeping to himself the last consequences of his fearful delusions.

In the young woman the fear arises that she might not be competent to fulfil her domestic duties: she reproaches herself with not loving her intended husband as much as she ought to do, imagines that she cannot make him happy. Sometimes it is anxiety and shyness, or even disgust, at the idea of the coming sexual embrace, or self-reproaches for past self-abuse, which give origin to the depression in the disposition.

In rare cases delirium with hallucinations or attacks of mania occur as 'betrothal psychoses.'

These conditions are generally of a transitory nature; they gradually slacken, and disappear entirely, as a rule, after the wedding.

In exceptional cases, however, a chronic incurable psychosis develops. Once I saw such a 'betrothal melancholia' in a young girl which got cured after six months. In the meantime the prospective bridegroom broke off the engagement. Two years afterwards the young girl became again engaged, and again fell ill after a few weeks, this time with symptoms of an hallucinatory paranoia from which she never recovered.

What should be done in those cases where either the pros-

pective husband or the prospective wife is attacked by mental disease?

We know that frequently the healthy would-be husband or wife withdraws his or her promise of marriage, although from a moral point of view it is no doubt reprehensible to break one's word if the other side is the innocent victim of a misfortune. It is an act of cruelty towards the sufferer which is felt particularly keenly where the affliction is recovered from. The step is justified in those cases only where the healthy prospective partner has been deceived as to the past history of the other, as to former attacks of insanity in the patient himself or herself or in his or her parents.

If the patient does not recover, the question with regard to the contemplated marriage is answered *eo ipso* on the principle that an insane person may not marry; otherwise the decision as to the future should be postponed until the insanity has been cured.

A quiet chat between the engaged couple will then often enough result in the abandonment of the projected union, seeing that even if relapses do not occur the marriage can hardly turn out a perfectly happy one, on account of the constantly present dread that a fresh attack may break out at any moment, or that the eventual offspring may inherit the insanity. Such a decision, that it is better not to carry out the intention to become married, will naturally receive the warmest approval of the medical adviser.

If the parties do not, however, renounce the idea to get married, the duty of the doctor is to call attention to the injuries which marriage involves, and by suitable words of advice to endeavour as far as lies in his power to prevent those injuries from exercising their influence, or, if possible, from happening at all.

If I have spoken here of 'betrothal psychoses,' it is evident that I do not include in this category those transient humours of a depressive character which appear especially in women, and occasionally also in men, the principal features of which

are feelings of doubt and anxiety with regard to the future. These moods often come on during the pre-nuptial period, and cannot be described as psychoses.

Sometimes, however, the symptoms of the illness are little marked during the period of the engagement, or they are kept secret by the patients themselves, but under the influence of the physical and mental excitement of the wedding-night the psychosis may break out in a violent manner, in the form of severe terror or even raving madness (post-connubial insanity).

In the majority of cases which show themselves as melancholia or as hallucinatory delirium, recovery takes place after some weeks, but as a rule not before the lapse of several months.

(It is clear that these conditions must not be mixed up with the quickly disappearing hysterical attacks which occur often during the wedding-night.)

I have myself seen two such cases in women. Both took the form of a melancholia; recovery occurred after five and six months respectively. In one of them a psychosis developed again after the first confinement, which remained incurable.

Conjugal Insanity.—This develops, as a rule, one or more days after the wedding, but it must be assumed that here, too, the beginning of the illness dates further back. Naturally, this applies also to the hysterical psychoses which appear at times in newly married women, but the origin and commencement of which are of much older date.

Psychoses of Pregnancy.—Conjugal insanity is very rare, whereas the psychoses of pregnancy and of the puerperium, especially the latter, are observed often enough.

If a psychosis occurs during pregnancy, the question arises whether the latter ought not to be interrupted by the induction of artificial abortion.

Such an induction of abortion must not under any circumstances take place where the disease is not a psychosis, but a hysterical or hypochondriac disposition. But where real

melancholia is present, or a hypochondriac melancholia, or a uniformly persisting extreme and depressive disposition, conditions which not infrequently increase up to raving fury, associated with delusions, refusal to take food, and attempted suicide—in cases of this description the question of artificial abortion must certainly form a subject for consideration.

These conditions commence, as a rule, at the beginning of the pregnancy, with a dread that the continuation of the same will prove tormentingly painful, that the confinement will not come off successfully, either because a preceding pregnancy was accompanied by severe physical suffering, eclampsia or other affections, or because it was succeeded by a psychosis.

These physiological fears, which are generally not unjustified on account of former events, grow further in a rabid manner, and assume eventually the above-described severe forms of a psychosis.

In the majority of cases these psychoses are recovered from after the completion of the labour or a few weeks later, more rarely before that occurrence, while the pregnancy is still going on; in others they terminate by death in consequence of voluntary starvation or through suicide, while in others, again, an incurable insanity develops.

In view of these facts, the interruption of the pregnancy appears to be indicated where the psychical depressive condition sets in during the first months of the pregnancy; on the other hand, it is unnecessary, as a rule, to institute artificial abortion during the later months, because the remaining time of waiting is then so short that there is not likely to be a considerable increase in the danger, and the psychosis often improves soon after the confinement, although it lasts sometimes for a few months beyond it. At all events, I regard the induction of miscarriage indicated where there has already been once before such a pregnancy psychosis.

Favourable as the prognosis of pregnancy-psychosis is, as a rule, if unaccompanied by complications, it becomes worse

with repeated attacks, and the outcome is not infrequently incurable insanity.

The miscarriage, which may also take place without any interference, is very soon succeeded in a large number of cases by a recovery from the psychosis; in others, however, the psychosis continues for some months, the miscarriage having no influence on the course of the illness; finally, the psychosis may become incurable in spite of the abortion.

Apart from the melancholiac and hypochondriac conditions, the question of the induction of abortion may also require taking into consideration for the same reasons in hallucinatory delirium, under which aspect a pregnancy-psychosis often appears, and in the very rare cases of mania.

The performance of the operation is, however, possible here in rare exceptions only, as the unrest of the patients will hardly permit the same to be done in a proper manner, and so as not to constitute any danger to the patient.

Epileptic insanity is, as a rule, just as little influenced on the whole by artificial abortion or premature labour as hystero-epileptic aberrations; it is only exceptionally and when the symptoms are especially urgent (refusal of food, attempts at suicide, severe hallucinations) that the induction of abortion can come into question.

The indication for the institution of abortion depends, generally speaking, only upon the condition of the mother.

The influence of an insane mother on the development of the child is not established with such an amount of certainty as to supply a basis of guidance.

Experience teaches that an insane mother may give birth to a normal child, and that that child need not necessarily in the further course of its existence be affected by insanity.

This means that incurable chronic paranoia and progressive paralysis are also excluded as indications for the induction of miscarriage for the purpose of preventing the birth of a child which appears predestined to fall a victim to insanity.

The induction of miscarriage should never be undertaken by a doctor without a consultation with one or more colleagues.

Puerperal Psychoses.—The lying-in period can constitute the source of origin of a psychosis in various ways. A puerperal infection or an inflammatory disease can produce an infectious psychosis; preceding alcoholism or morphinism can lead under the weakening influences of the puerperium to a corresponding intoxication-psychosis; women suffering from severe hysteria or epilepsy are liable to be seized by a puerperal insanity corresponding to the character of the respective neurosis.

The first-named infectious psychosis begins, as a rule, two to seven days after the confinement, and is very often fatal in its course.

In by far the majority of the cases the puerperal psychoses are functional psychoses which take an acute course under the clinical aspect of a hallucinatory delirium, a melancholia, mania, or paranoia. These occur principally in primiparæ, and more often if the first labour takes place at a somewhat advanced age.

The commencement of the psychosis dates, as a rule, from the first few days of the puerperium.

The prognosis is, if it is the first psychical attack, favourable, and the average duration of these functional puerperal psychoses is between five and six months.

If there has already been a psychical attack before, and especially if that also occurred during the puerperium, the prognosis is considerably worse.

The psychical disease can, further, form the starting-point of relapsing, periodical and circular psychoses or pass into incurable secondary dementia (about 20 per cent. of the cases).

Lactation Psychoses.—What has been said with respect to the puerperal psychoses applies, on the whole, also to the rare cases of lactation psychoses which are produced in predisposed individuals, either through unfavourable psychical

influences (illness of the child, etc.) or through fatigue (staying up at night, insufficient nourishment).

In the majority of cases this kind of psychosis occurs in the sixth to eighth month after the confinement.

Although pregnancy, puerperium, and lactation constitute undoubted dangers in regard to psychical disease—but, as a rule, only where there is a hereditary predisposition—we need not, on the other hand, entertain any exaggerated fears on the extent of those dangers.

The number of individuals who get attacked is, after all, very small in comparison to the number of pregnancies and confinements generally, and the percentage expressed in figures would be a very small fraction indeed if we possessed any reliable statistics on the point.

To many, many thousands of pregnancies and puerperia there occurs now and then a case of psychosis. But there can be no doubt that a considerable hereditary tendency to mental diseases favours the production of such psychoses in a most striking manner. It has, moreover, been pointed out that, favourable as a first attack is in the majority of cases with respect to prognosis, the issue must be looked upon as serious where the psychosis recurs during pregnancy or in the puerperium, as the danger of incurable insanity supervening is thereby very materially increased. From this it becomes manifest that it is the duty of the physician to exercise his full authority in those cases where there has already been an attack of psychosis during pregnancy or the puerperium, in the direction of preventing further pregnancies, and to point out unhesitatingly the dangers of a relapse.

Dangers to the Husband.—As compared with the dangers which arise in the married state to the female sex, the injuries which may lead to insanity of the husband are far less considerable.

In his case, too, there are no doubt psychoses which break out under the influence of the wedding-night. Thus, I have repeatedly seen severe attacks of delirium tremens coming on

during the wedding-night in consequence of the abuse of alcohol at the preceding festivity. Impotence, possibly of a psychical kind, may in a newly married man be the cause of a hypochondro-melancholiac insanity. Disappointment in the anticipated married happiness, a bad wife, pecuniary cares, and troubles relating to the support of the family—each of these causes is capable of producing insanity in a man predisposed to it; nevertheless, it is only in exceptional cases that the result is not only sorrow and grief, but an actual psychosis.

Inducted Insanity.—We must, however, in this connection recall those cases in which the insanity of one of the married partners acts contagiously on the other, producing in the latter a mental disturbance.

It is well known to alienists that an insane patient is capable of transmitting his fears, his folly, sometimes even his hallucinations, to another individual, predisposed to mental disease, who is in constant attendance on the patient, nursing him and bestowing upon him great sympathy.

The insanity which arises in the second individual is called inducted insanity (*folie à deux, folie communiquée*).

Such inducted insanity is often observed in sisters, twins, mother and daughter, who live together. The contagion extends sometimes to the entire family, and affects even members of the household who are not in any way related to it, such as servants, etc. In such a case we speak of *folie à trois*, *quatre*, etc. There is consequently nothing remarkable if an insane husband infects occasionally his wife, or—which happens far more rarely—an insane wife her husband. The presupposition is here, also, that the individual secondarily affected was predisposed to insanity or, as in the majority of cases, more or less weak-minded. It is as a rule paranoic conditions, especially illusory fears of persecution, religious delusions, occasionally also querulous insanity, which are thus transmitted.

If the melancholia of one of the married partners is trans-

mitted to the other, the outcome is sometimes a terrible family tragedy, such as we read about in the daily newspapers, in which the married couple do not only take their own lives, but also those of their children, in order to save them from an existence which can only bring them misfortune, and to remove them out of a 'sinful world.'

Conjugal Progressive Paralysis. — Matters are totally different where a conjugal progressive paralysis makes its appearance. Here we have not to deal with the transmission of insanity from one spouse to the other, which seems to be unlikely, seeing that the disease is only in exceptional cases present in both of them simultaneously. The connecting link is here, as a rule, formed by syphilis, one of the married partners—in most cases the husband—infecting the other.

Divorce.—The question remains, finally, to be answered: What is to be done if one of the married partners becomes incurably insane?

If marriage is a tie which compels husband and wife to stand by each other in happiness as well as in misfortune, the fact that one of them is so unhappy as to fall permanently ill should, on principle, and especially from the ethical point of view, constitute no motive for the other and healthy partner to separate from him or her.

The circumstances of real life are, however, often enough more powerful than questions of principle and ethical considerations.

This has been recognised by the German law, and the right to divorce an insane husband or wife is now granted in the German Empire in virtue of Section 1,569 of the Bürgerliches Gesetzbuch (Civil Code), which reads as follows:

'A married person may sue for the dissolution of his or her marriage if the other spouse has become insane, if the disease has lasted at least three years during the course of the married life, and reached such a degree that the mental companionship between the married partners has ceased, and

here is no longer any prospect of this mental companionship being re-established.'*

* The law of England, Scotland, and Ireland, and also that of the United States, is in this respect totally different. In these countries insanity does not render a marriage void, nor is it *per se* a ground for divorce or judicial separation. Cruelty or adultery practised by a husband or wife who is not insane enough to come under the lunacy law, and thus to be liable to permanent confinement in an asylum, entitles the suffering spouse to sue for separation or divorce, as the case may be. For the marriage of an insane person to be annulled on the ground that he or she was insane at the time of the marriage, the law requires total insanity, and not merely a certain amount of mental disorder, unless undue influence was exercised upon the person in question.—TRANSLATOR.

XXIII.

PERVERSE SEXUAL SENSATIONS AND PSYCHICAL IMPOTENCE IN RELATION TO MARRIAGE.*

By ALBERT MOLL, M.D. (Berlin).

1. General Remarks.

For the better understanding of the importance of perverse sexual sensations to the married state, it is advisable to say first, by way of introduction, a few words on sexual instinct in general.

The sexual desire of man serves to bring the sperm cells secreted in the testes in contact with the female ovum by transmitting them into the maternal organism as the one in which human impregnation takes place. Two elements are here required—first, the expulsion from the paternal organism, and, secondly, the introduction into the maternal organism. The first process is called ejaculation, and is effected by means of an impulse, the desire for *detumescence*. This detumescence is sometimes the only manifestation of the sexual desire, as, for instance, in some idiots who practise masturbation because they experience an organic impulse at the genital organs without at the same time thinking of any other person. As a rule, however, the desire for detumescence does not appear alone; it is, on the contrary, accom-

* Medical and legal readers will find in the large edition a number of details which for obvious reasons could not be included in this volume.

panied by a second desire, that for a woman, which impels the man to seek her touch, her embrace, and also her society. This desire for another individual is called the desire for *contrectation;* it also appears, at least for a time, without any other accompanying desire. There are boys who long before puberty experience a desire to touch women, to embrace or to kiss them, and in whom there is not a single thought of masturbation or of any other act connected with the genitals. But the desire for detumescence and the desire for contrectation combine in the sexually mature normal man, and it is this combination which gives rise to the impulse to perform sexual intercourse.

It is only rarely that the desire for detumescence is absent in a man if the genital organs and the general mental condition are intact. The permanent absence of the desire for contrectation—that is, of all sexual desire for another individual—is under similar conditions also something exceedingly rare, whereas a false direction of this desire, for instance, the inclination of man towards man, appears more frequently. Occasionally, it is true, the desire for detumescence and that for contrectation may exist separately in the same man, at least for some time. One may entertain, for instance, true love and high regard for a woman without desiring to have sexual intercourse with her, while this desire is directed to other women.

In the woman matters are somewhat different. Since the ovum remains in the maternal organism where it becomes impregnated by the sperm cell, the sexual desire must not lead to expulsion—that is, to the ejaculation of the ovum. A desire for detumescence exists, it is true, in most women, but it only conduces to the discharge of certain secretions, and not of the ovum. A desire for contrectation is also present in woman; it corresponds to that in man, only that it is not directed towards woman, but towards man. The two component parts of the sexual instinct—the desire for detumescence and the desire for contrectation—are, as a rule,

combined in woman as well as in man, and it is from this combination that the desire arises to have intercourse with man. Very often, though, the desire for detumescence is absent in the female sex, and the desire for contrectation is present by itself. In such a case the woman has no desire for sexual gratification, no desire at all for any process whatever associated with the genitals, but there exists, nevertheless, an inclination for the embrace of man, and an interest in him. In other cases the desire for detumescence and the desire for contrectation may in women also exist separately. Permanent absence of the sexual desire is called anæsthesia sexualis. In reality the latter may be said to exist only if both components of the sexual desire are absent—*i.e.*, the organic demand on the part of the genitals as well as the longing for another person. As a rule, however, such cases are also included among those of anæsthesia sexualis, in which there is no desire for detumescence, and that, as we are aware, occurs in women comparatively often. A lesser degree of sexual anæsthesia which is similarly very frequent in women is called natura frigida. The increase of the sexual desire is called hyperæsthesia; the latter is, naturally, capable of giving rise to severe conjugal troubles. If it is the husband who is subject to this hyperæsthesia, the wife will soon look upon the frequent demands of her partner as cruelty. If the hyperæsthesia is present in the wife, even normal men are sometimes not capable of gratifying her demands. The anæsthesia or frigidity of the wife may also easily lead to a disturbance in the harmony of the married state on account of the absence of an important exciting element in the husband—namely, the sexual irritation of the wife. This explains why many married men look for the gratification of their desire elsewhere, if the wife happens to be of a frigid nature and does not simulate passion, as so many of her wiser sisters very often do. Indeed, every pronounced difference between the sexual desire of the wife and that of the husband is capable of giving rise to conjugal unhappiness, though very often a

natural adaptation of the married couple to one another, especially with regard to their marital sexual requirements, is instrumental in avoiding all unpleasantness. We may also mention that the mutual gratification is in some cases rendered difficult by organic or mechanical obstacles.

It is only natural that medical advice should be occasionally sought by married individuals because of the hyperæsthesia or anæsthesia of their own sexual appetite or that of their partners. In women who have had sexual intercourse with diverse men it happens now and then that they are not anæsthetic in the presence of one particular man only; it would therefore appear that the degree of inclination plays here a great rôle. For this reason, those who are about to marry should consider well whether they love one another, and particularly whether a sexual inclination is present or not.

As regards man, it is necessary to separate from the above-mentioned sexual anæsthesia those cases in which the normal heterosexual imagination is in consequence of sexual over-indulgence no longer sufficient to produce erection. This is seen in persons who have practised self-abuse to excess, in debauchees who have worshipped too much at the altar of Venus, and thus become, perhaps, accustomed to unnatural and perverse excitations.

On the other hand, we need not necessarily regard a case as pathological if the desire for cohabitation with a certain woman is absent. Apart from the individuality of taste in general, we cannot speak of a morbid condition where the outward charms are not sufficient to excite the sexual desire. If the assistance of the physician is, therefore, invoked by a man who, for material reasons, has married a rich and decrepit old woman, the absence of the libido and the consequent impotence need not cause any surprise, since certain female attractions are required for the production of erection and ejaculation. The surprise is, rather, that, in spite of the absence of almost every visible exciting element which some

of these cases exhibit, there should be any virility at all, though it does not by any means follow that this virility is here a morbid symptom.

Altogether, we must not be too rash in speaking of something morbid, if the sexual desire assumes a peculiar direction. If a young man belonging to a better-class family suddenly falls in love with the old and wrinkled cook of the household, and is determined to marry her at all hazards, if a dashing young officer marries one day a prostitute who has gratified the sexual pleasure of all his fellow-officers, the lay public is wont to assume something morbid, or even a touch of insanity, while the alienist will not be satisfied with such an assumption from the striking manifestation of the sexual desire unless there are also other sure signs of psychical disturbance. To the same category belong also the extraordinary passions of women—for instance, the cases of ladies of the highest rank who fall in love suddenly with their coachmen, or where ladies persecute with passionate proposals negroes or other uncommon people. Nor can we consider as pathological those men who, in their riper years, experience a love-passion which had not hitherto been observed in them, and which, if they are married, causes them to neglect wife and family. We should sooner include in the domain of pathology those men who become gradually colder and colder towards their wives, despite the full retention by the latter of their physical and moral charms, while retaining their virility in the presence of other women, frequently enough common prostitutes. Among the morbid cases we may perhaps also include those married women who, after having for years loved their husbands and faithfully performed their conjugal duties, are suddenly seized with a passion for some entirely unworthy individual, into whose arms they throw themselves unreservedly. Sometimes this infatuation disappears after a few months, or even weeks, making room again for the normal married life.

These cases are capable of causing great perplexity to the

physician consulted with regard to them. Reproaches hardly ever help to bring about a satisfactory settlement ; diplomatic steps are far more likely to achieve the desired end. A very desirable arrangement is a lengthy separation, such as can be obtained by travelling. Confinement in a lunatic asylum, which was resorted to in several cases known to me, is from the ethical standpoint scarcely defensible, seeing that such cases do not, after all, represent insanity of a nature dangerous to others.

Perverse Sexual Desire.—As the normal sexual instinct creates a longing for the opposite sex, we speak of an heterosexual desire or of heterosexuality. There are, however, cases where the sexual irritation is called forth, not by the opposite sex, but by the same sex. In other words, a man gets excited by another man, and a woman gets excited by another woman. This condition is called *homosexuality.* Some are susceptible to the attractions of both sexes, which means that they combine homosexual and heterosexual feelings in such a manner that sometimes the one kind, and sometimes the other, prevails. Such cases are designated as psychosexual hermaphroditism. There are, further, cases where the sexual instinct, though it impels man to seek woman and woman to seek man, yet does so not for the purpose of normal sexual intercourse, but for perverse sexual acts. In these cases the infliction of pain plays an especial part. Thus, the man is sexually excited by the ill-treatment, humiliation and suffering of the woman, and the woman by similar endurance on the part of the man. We call these cases *sadism.* Then there are cases where the impulse is to cause pain, not to the other person, but to subject oneself to such pain or degradation, and to produce in this way gratification of the sexual desire. This condition is called *masochism.* In other cases, again, the desire is not directed towards an entire person of the opposite sex, but to one particular part of the body or to an object belonging to the same; thus, for instance, a man may get sexually irritated through articles of

underclothing belonging to a woman. These cases fall under the category of *fetishism*.

All these conditions in which the sexual instinct presents a qualitative modification are called also paræsthesias of the sexual instinct, perversion of the sexual instinct, perverse sexual instinct, or perverse sexual sensation.

Sadism, masochism and fetishism may also be associated with homosexual feelings. A woman may, for instance, experience a particularly strong pleasurable excitement from the ill-treatment inflicted upon her by her female paramour.

Undifferentiated Sexual Desire.—The development of the sexual instinct takes place in two periods—that of the undifferentiated and that of the differentiated sexual desire. In the first stages of the awakening sexual sensations the sexual desire may deviate for a longer or shorter time while seeking for something unknown, so to say, and seize the very first object which happens to be in the immediate proximity. The passion of a young girl in a boarding-school may, for instance, be directed towards one of her fellow-pupils, towards one of the lady-teachers, or an actress; but it may also be an artist living across the way who is the object of her desire; indeed, even animals may in the male as well as in the female sex form an object of passion at the commencement of the sexual development. Accident appears to play here a very important part. The undifferentiated sexual desire accounts for numerous intimate friendships, such as we often see between boys and girls at the time of commencing puberty. They reveal to the experienced observer such a mass of blended sexual sensations that it is impossible to deny their sexual basis. The situation is alike in both sexes; the difference is only that in the male sex homosexual acts occur far more frequently than in the female, because in many women not only the differentiated heterosexual desire that appears at a later stage, but also the undifferentiated one, manifests itself more in the psychical domain than at the genital organs. But it is possible even at the period of un-

differentiation for most violent outbreaks of passion to occur. In boarding-schools it very often happens that two girls become attached to one another psychically, and occasionally also physically, and that a third girl who is desirous of becoming intimate with one of them is regarded by the other with such hatred and jealousy as cannot be surpassed by the heterosexual love of adults. Later on the undifferentiated sexual desire disappears. With puberty developing more and more, there ensues under normal circumstances in males a powerful desire for female individuals, and in females one for the male sex. It is, of course, possible on the one hand for the undifferentiated sexual desire to make its appearance already before the commencement of physical puberty, and on the other it may remain in existence for many years after the completion of the physical puberty. There are cases where it does not begin to subside gradually before the age of between twenty and thirty. I am not quite sure whether there is a period of undifferentiated sexual desire in all individuals. That in persons whom we must consider as normal and healthy it can exist and last for some time I am not disposed to doubt. The acquaintance with these two periods of the sexual instinct is necessary, because a prohibition of marriage, while justified on account of permanent sexual perversion, is not justified on account of temporary perverse sensations resting upon the undifferentiated sexual desire.

Importance of Medical Advice at the Marriage of Perverse Individuals.—The study of the sexual perversions is comparatively new, and it is not long since not only the lay public, but also the majority of the medical profession, were without any knowledge on the subject. The comprehensible disinclination of the patients to disclose to their medical advisers a perversion of the sexual desire was the cause of the latter groping about in the dark with regard to each individual case as well as with regard to the subject as a whole. And so it came about that, when consulted by such people, doctors were too ready to recommend them to

get married. Of the misery which has thereby been caused hardly anything has become public property, but it is necessary to point out the serious consequences involved in such an advice. It is certainly true that habituation plays a great rôle in the married life, not only of healthy people, but also in that of perverse individuals: what is at first repulsive and instrumental in preventing erection and ejaculation in man may in time by familiarity lose its forbidding character. But the probability of such an issue is often so slight that one is not justified in incurring the grave consequences associated with a recommendation to marry. The responsibility being so great, it is therefore the duty of the physician, when consulted, to withhold his opinion until after he has examined the patient and the circumstances connected with the case most carefully and exhaustively.

It need not be supposed that it is superfluous to enter into a discussion on the marriage of sexual perverts, because perverts refuse to have normal sexual intercourse, and do not, consequently, wish to get married. For many homosexuals embellish their propensity with the assertion that it is not a morbid one, that Nature's intention is to produce by homosexuality the unfruitfulness of certain individuals and the extinction of their race, that Nature does not wish all men to procreate descendants, and that she makes some human beings incapable of propagation, just as she does with a number of bees. I do not wish to argue minutely that the whole of this reasoning is nothing but a fallacy, since what applies to animals does not necessarily apply to human beings, and since the circumstance that Nature must have had some definite purpose in view when creating homosexuality does not exclude the notion of its morbid character. To go into more details respecting this point would be superfluous, as the fact is that there are homosexuals and other perverts who do marry.

Of course, many of them never think of consulting a medical man before their marriage. The majority have motives for

getting married which are of far greater importance to them than considerations of their own health, of that of their partner or offspring. Influenced by selfish motives, they marry, heedless of the severe results which their perversion is capable of producing. Some do not feel disposed to miss the opportunity of improving their material position by a rich marriage, others may be impelled by passionate love: take, for instance, the case of a man who has sexual sensations for both sexes, who is, in other words, a psycho-sexual hermaphrodite, but who suddenly falls passionately in love with a girl, whom he marries without considering whether his homosexual propensity is a contra-indication to marriage or not. Or take another case: There are men who are sexually excited only by women with masculine qualities, or even by homosexual women only. Such a man is easily deceived by the passionate love which binds him to an homosexual woman, and if this woman, in spite of her sexual disinclination towards the male sex, marries for material or social considerations, most calamitous results may arise from that marriage. Perverse women also marry for the same selfish reasons as perverse men. An homosexual woman whom her husband divorced after eight years of married life declared to me: 'I married because it would have been very unpleasant to me to remain an old maid'—a motive, by the way, which very often impels even non-perverse girls to get married. Others look upon family life as something desirable, and there are homosexual women who long for motherhood. There are further cases where, in spite of the absence of all inner desire to get married, marriage is nevertheless contracted for certain definite reasons. In noble or dynastic families, for instance, this is done to prevent the extinction of the line; in other cases material considerations make marriage a desirable step; one of the most important motives is, moreover, the desire of individuals who have brought upon themselves the suspicion of homosexuality to rehabilitate themselves, so to speak, by the contraction of a regular marriage. They forget, or wish to forget, what fate

they create thereby for themselves, their wives, or their eventual offspring.

From all this it becomes evident that there are numerous motives for the marriage of sexual perverts, and such people will only in very rare cases try to obtain beforehand proper medical advice. But even when such candidates for marriage do consult a doctor before the consummation of their design, it is very often not for the purpose of eliciting an unbiassed professional opinion. Experience teaches, rather, that their object is to lull their own conscience, and that they desire to make use of a medical man as an instrument in that direction. Such patients do not wish to hear what the best course would be from the standpoint of hygiene and morality, so they try to prejudice the doctor in their favour and to extract from him that advice which is to them the most desirable. If the doctor's opinion goes the other way, fresh motives are adduced again and again, in order to cause him to change his mind and to induce him to give his consent to the marriage.

But, generally speaking, sexual perversion does not frequently form a subject of medical consultation with regard to marriage, this being to a great extent due to a sense of shame. Sexual perversions are always abhorred by the public, or at least regarded with contempt. And, besides, there are few occasions when prevarication and insincerity are so rampant as in those connected with the sexual life.

Of course it is not to be expected that prospective parents-in-law will often discuss with their prospective sons-in-law the latter's sexual proclivities. For are there not people who consider it unseemly even that the father of a young girl should ask her intended husband about the state of his health? They are afraid that the ideal relationship which rests upon love would thereby suffer degradation. But such objections must not be taken too seriously. Seeing how often father-in-law and son-in-law have a free interchange of views as to the worldly prospects of the intended couple, there

surely cannot be anything very derogatory in a serious conversation on the state of health of the parties contracting the marriage. And if we bear in mind that the perversion of the sexual instinct is of very frequent occurrence, and that it is just now the subject of extensive researches, we cannot from the moral point of view find anything objectionable in a conversation relating to the sexual instinct, any more than in the question whether the candidate for marriage is syphilitic or not. It is not morality which decides on the propriety of such discussions, but conventional customs, which are often, however, apt to change rapidly in deference to the dictates of science. A consideration of the connection between marriage and sexual perversion is, therefore, not useless, as there may be some who will let themselves be guided by it, and their number will probably increase in the future.

At any rate, the dangers which sexual perversion causes to the married state are sufficiently great to warrant their study. The significance lies in several circumstances. In the first place, the virility of a man may become diminished or get lost entirely through a sexual perversion. Secondly, it is possible for sexual perversion to render intercourse so unbearable for the wife that she may decline to practise it altogether. The relations between the husband and wife suffer not only on account of the differences which ensue immediately from the prevention of copulation, but, thirdly, also by the absence of the normal moral basis of the reciprocal relationship. Fourthly, sexual perversion leads not only to masturbation, but also to extra-nuptial sexual intercourse. Fifthly, social or legal disagreeable results may arise by the perversion leading to criminal or other objectionable actions. And, finally, there may occur injuries to the offspring, partly in the shape of hereditary taint, and partly in the shape of unfavourable impressions created by the disturbed married state of the parents, or by the general behaviour of the sexually perverse father or mother.

2. Homosexuality.

In examining the relations between the married state and sexual perversion, it seems advisable to consider first the subject of homosexuality, as many things will thereby become clear in regard to the other perversions.

Let us see, first, whether marriage is capable of contributing to the disappearance of this sexual perversion. There can be no doubt that occasionally this is the case. As upon so many other inclinations and propensities, so upon the sexual instinct does habit exert an influence, and not only upon the normal, but also upon the perverse. It must not be argued that perversity is a consequence of congenital predisposition, and that a correction by influences is therefore impossible. Despite the circumstance that a number of authors deny this supposition, and that they always find the causes of perversion in influences acting in the course of life, it is an established fact that even congenital qualities can be influenced by actions operating after birth. Even the growth of parts of the body, although it tends in certain directions on account of congenital dispositions, can be artificially altered. I will merely mention here the mutilation of the feet in Chinese women, and the displacement of the liver in consequence of tight-lacing. And just as it is possible to modify congenital physical tendencies, so we can do the same with congenital psychical dispositions. If we suppose, therefore, that in a certain case there exists an innate inclination towards one's own sex, it does not at all follow that it is not possible to eradicate it by influences during life—for instance, by permanent abstention from homosexual attractions and permanent action of heterosexual excitation.

It is necessary to emphasize this sharply, and mainly because it is absolutely denied by some people. It is particularly those who agitate in favour of declaring homosexual intercourse unpunishable, and deserving of social equality, who insist upon the impossibility of altering the homosexual sen-

sations. They seek in this way to advocate the view of the innateness of homosexuality, or, in other words, its freedom from self-blame, and, secondly, to demonstrate the futility of punishing the intercourse for the purpose of correcting the pervert.

Whether we regard, therefore, homosexuality as congenital or not, we are bound to admit that influences during life can play an important part in the eradication of the perversion. Among these influences we must include in particular the frequent impression effected by the attractions of the other sex through intimate companionship, through physical and moral association. Sometimes the homosexuality disappears spontaneously through the action of such heterosexual excitations. Numerous cases of passionate girl-friendships of a sexual—that is, of course, homosexual—character prove this. No matter how great the passion may be, and no matter how violent the jealousy in connection with it, the whole relationship may become dissolved by the arrival of a man upon the scene, and make room for an heterosexual attachment. Few influences of life favour the development of homosexuality so much as the prudish separation of the sexes during maturing youth, and we may say that this applies to boys as well as to girls. Permanent fellowship with a person of the opposite sex is even far more capable of causing the disappearance of perverse inclinations than occasional association. It is true that later in life, when the homosexuality is fully developed, and after it has existed for many years, such a favourable issue will not take place easily; but in younger people it is quite possible to witness a complete extinction of the perverse desires under the influence of habituation to the attractions of the other sex. Girls have in so far the advantage over young men that they marry, as a rule, much earlier than the latter, who for social reasons do not generally enter the matrimonial state before they have reached an age at which it is hardly possible to expect a transformation of well-marked homosexuality.

The less pronounced the sexual perversion, the easier it is to remove it, and the more favourable the effect of marriage. There are cases of psychosexual hermaphroditism which manifest sometimes a preference for the same sex, and sometimes for the other, and where opportunity plays the principal part. It is clear that in these cases marriage is most likely to act beneficially. Nevertheless, the favourable effect is sometimes absent altogether. I know a married couple where the husband entertains the most sincere affection for his wife, whom he cherishes in every respect and with whom he has normal sexual intercourse, and who nevertheless experiences homosexual desires as soon as he meets accidentally a type of man which appeals to him sympathetically. It is therefore necessary to ascertain, if possible, in the first instance, when the question of marriage crops up, what influence feminine attractions have on the disappearance of the homosexual inclinations. For this purpose the self-observation of the man during his platonic intercourse with the female sex is generally of greater value than experimental recourse to prostitutes. Successful copulation does not prove the real existence of the susceptibility to the attractions of woman, which is one of the preliminary conditions of marriage, and, on the other hand, impotence in the presence of a prostitute is no evidence that a respectable woman would not produce in the man in question sufficient sexual excitation.

There are, further, many psycho-sexual hermaphrodites in whom homosexual inclinations arise only if they have not practised heterosexual connection for a long time. So long as the man has regular intercourse with woman, there is no sign of homosexuality. It is obvious that the accumulation of semen is in these cases a preliminary condition of homosexual sensation, which is therefore eliminated by regular heterosexual intercourse. Under such circumstances, menstruation, pregnancy, and the puerperium, as well as illness of the wife, may become sources of danger to the husband if he is thereby prevented from banishing his perverse desires

by regular intercourse with the wife. We must not forget, however, that, after all, the same objections, though they be of an heterosexual character, arise in regard to the married life of normal individuals, if the wife is prevented from having sexual intercourse by the above-mentioned conditions. Sensible practitioners have therefore long since come to the conclusion that the systematic advice given sometimes to married women to avoid all sexual intercourse, for instance, during pregnancy is fraught with the greatest dangers, and that it is necessary in individual cases to weigh the risks which such advice involves in the direction of inducing the husband—or even forcing him—to seek sexual intercourse elsewhere than in the conjugal bed.

To illustrate the influence of marriage on the attempt to eradicate homosexuality, attention has been called to the not very rare occurrence of homosexual intercourse among Catholic priests, for which celibacy has been made responsible. The matter is, however, not quite so simple, and with regard to some cases, perhaps, that Catholic priest is right who tries to explain the situation otherwise. He thinks that male homosexuals distinguish themselves already in childhood by their female qualities; since affectionate attachment is one of them, they soon attract the attention of the priests by making themselves useful to them, a circumstance of great importance in the Roman Catholic Church services. As a consequence, they would come in contact with the priests at an early age, and be influenced by the latter in the choice of the ministry as a profession. Even if we admit unhesitatingly that this explanation is acceptable in many cases, it cannot, nevertheless, be denied that the separation from the other sex favours homosexuality, and that association with the other sex has an opposite effect. Experience also teaches that constant fellowship of persons of the same sex to the exclusion of the other sex induces to homosexual intercourse such persons as would not under other circumstances have recourse to it. I may mention, for instance, the homosexual intercourse on

board ship during long sea-voyages. This also tends to prove that marriage may be a favourable factor in the repression of homosexual inclinations.

Of course, the effect of habituation cannot always be foretold with certainty, and we must remember that it may also lead to indifferentism. The above-mentioned cases of relative impotence of some husbands in the presence of their wives point that way. Nevertheless, we can find in habituation at least a material aid in the development of heterosexuality, and I consider, therefore, a prolonged platonic companionship between the homosexual individual and a female person a desirable experiment if we wish to estimate correctly the value of habituation in any given case.

This favourable action of habituation will, as a rule, be most powerful where there are no other morbid symptoms or hereditary predispositions present. The point is, therefore, worth remembering, and in view of the circumstance that the offspring are also subject to danger (an item to which we shall soon return), great importance must be attached to hereditary tendencies and the general physical and moral constitution.

As regards the male sex, the question is also important whether the homosexual attraction is exercised by younger or older individuals. The sexual excitation by unripe boys is from a social and forensic point of view far more serious than the excitation by grown-up men. But from the medical and psychological standpoints the cases which are forensically the severer ones must be regarded as the lighter. Boys are far more like women than grown-up men; the sexes, which comparatively resemble one another up to puberty, become afterwards more and more distinct, but in such a manner that the woman retains through the delicacy and softness of her skin as well as in her entire nature a far greater resemblance to boys than do grown-up men. Hence experience shows that there are quite a number of men who, though they generally feel sexually excited in the presence of

mature women, do nevertheless occasionally, and almost episodically, undergo the same excitation by immature boys. And although it is but natural that the enormous social and medico-legal dangers should be taken into account when the subject of marriage is under consideration, there is, on the other hand, a favourable factor in the circumstance that such men are more likely to become attached to a woman and to become habituated to her than one who finds himself attracted by adult men—who, in other words, suffers from sexual inversion.

The foregoing observations appear to explain the favourable influence of marriage in some cases of homosexuality. But though marriage improves sexual perversion in a few cases, it cannot be denied that it not infrequently reacts unfavourably on both partners. The pronounced homosexuality of the one partner creates unnatural and unhealthy conditions ; the homosexual man is very often impotent towards his wife—neither erection nor ejaculation can take place. Under ordinary circumstances impotent towards women, he places reliance, when getting married, on the hope that he will succeed in creating virility by artificial means—for instance, by imagining during the attempt at copulation that he is having intercourse with a man of whom he is fond. Apart from the immorality surrounding such intercourse, in which the wife is most woefully deceived, such an artificially exercised coitus leaves almost invariably behind it a feeling of lassitude and weakness, unaccompanied by a feeling of satisfaction such as is caused by normal intercourse. Very often the desired object is not attained, and in any case it is not difficult to imagine what sort of sexual cohabitation that is which requires adventitious aids for its performance. Some try to enhance their virility by the use of alcohol, a proceeding which, besides being totally unreliable, can certainly not be looked upon as proper. Such intercourse may not only produce a temporary feeling of faintness, but the continued artificial irritations may become causes of disease and bring

about a severe functional affection of the nervous system. In many cases the horror at being touched by a female is so intense that erection cannot be produced by any artificial means whatever, the wife, meanwhile, being tortured for hours together. We must not lose sight of the fact that, notwithstanding the frequency of sexual anæsthesia in women, many of those who are married have a craving for some sexual gratification, and that where the sensuality is strong it cannot be immaterial for the nervous system whether this satisfaction is obtained or not. Have not some gone even so far as to suggest that the reason why so much hysteria is seen among the nuns in convents is partly because they miss the gratification of the sexual desire? But even if we do not admit this to be correct, the situation is indeed very serious if the wife is brought to the highest point of excitement by the exertions of her husband without her experiencing any pleasurable sensation. Such an excitation without gratification represents a severe injury to the nervous system. The more sensual the nature of the wife, the more serious will be the consequences; and though it may be from an ascetic point of view praiseworthy conduct on the part of the wife not to insist on her rights, the causation of sexual excitement without the necessary gratification is from the hygienic standpoint most decidedly reprehensible. That the marriage of homosexuals is frequently dissolved after a short duration cannot under such circumstances cause us any surprise.

The danger of impotence is especially great in the presence of a virgin, and the fear of the first night causes, therefore, to many homosexuals the greatest anguish. Perhaps, against their will, they have been forced by their relatives into an engagement to marry; their renewed protestations were met by repeated attempts at persuasion, until they were obliged to give in. With the greatest reluctance they became betrothed, and now shortly before the approaching marriage they have to pretend that they are happy. The dread of impotence, the sense of shame, and everything connected with

the miserable business, can lead to most disastrous results, and cases are known to me in which suicide immediately before or after the marriage ceremony was in all probability, if not without a doubt, due to this feeling of terror. The cause of suicide was a mystery to the nearest relatives; but the details which became known afterwards through a few of those who were familiar with them, or by letters left behind, removed all doubt as to the real cause of the self-destruction. In other cases of which I know, where homosexuals married without, or contrary to, medical advice, cohabitation became possible only after an operative rupture of the hymen by the surgeon's knife. I have myself recommended this procedure several times, after having been in consultation with both parties. Although it is not permissible to induce the wife to consent to this operation by means of false pretences, such an interference seems to be perfectly justified if the wife agrees to relieve the impotence in this way. As a matter of course, no doctor has a right to inform the wife that homosexuality is the cause of the husband's impotence, unless he has the latter's full permission. I do think, however, that the best course for a medical man to adopt under such circumstances is to refuse to have anything to do with the case if his interference demands on his part any deception of the other partner. He may offer his assistance only on the understanding that he be relieved of his obligatory silence towards husband or wife respectively, and that it should be left entirely to his discretion and judgment to refer only to what he considers necessary.

It is, of course, important to consider not only whether the individual in question is potent at all or not, but also the extent of such potency. The strength of that potency ought in a husband, under circumstances of harmony, to be equal to the sexual requirements of the wife, or at least not materially unequal to them. In this respect, however, a great deal must be left to accident. With the exception of a few rare cases, it is under our present customs as a rule impossible to

obtain an inkling before marriage as to the amorousness of women. And yet there can be no doubt that the unhappiness of many a marriage arises from the want of correlation between the two parties. All those outward signs by which over-clever individuals pretend to be able to tell the amorousness of females, the look, the shape of the nose or mouth, are of no value. I know women who, on account of such external distinguishing marks, are reputed among their male acquaintances to be extremely sensual, but who do not possess the slightest trace of libidinous propensity. We must, therefore, in considering the demands made upon the virility of the husband, take the average woman as a basis. If the presumption is that he is only capable of performing the sexual act with difficulty once in two weeks or so, he should be dissuaded from marrying, as otherwise serious conflicts are sure to break out within a short time after the marriage. These will occur even if the wife has no particular desire for intercourse, but is anxious to practise it either because she is longing for maternity or because she wants to become practically acquainted with the great unknown act. Some wives demand sexual intercourse principally because they believe that they control their husbands in this way, and because they wish to reassure themselves as to their husband's fidelity. But no matter whether intercourse is desired for sensual reasons or on practical grounds, marriage with a man with markedly reduced virility is no more advisable than with one who is completely impotent, if a pronounced perversion is responsible for the diminution in the virility. For although habituation may in younger people and in lighter cases play a considerable part, it is not so effective as to give us cause to expect a change for the better, say, in a man thirty years old who has a pronounced inversion of the sexual desire. Those cases are probably the most unfavourable where the other psychical qualities of the individual in question are also developed contrariwise to the respective sex—in other words, where a man behaves more like a woman, or a woman more

like a man, where occupation and inclination correspond entirely to those of the opposite sex.

Homosexuality of the Wife.—From the purely physical point of view homosexuality of the wife naturally plays a far less important part than that of the husband, seeing that the share of the former in cohabitation is only of a passive character. This is why intercourse is possible even if the wife is not sexually excited by the husband. This circumstance must be borne in mind in regard to the intercourse between a homosexual wife and a normal husband. Of course, the wife does not in such cases experience any sensual pleasure. This is not, however, necessary for impregnation, as we know that there are many heterosexual and homosexual women who become impregnated, although they experience no sensual pleasure during intercourse.

Sometimes, however, the homosexuality of the wife is associated with an intense aversion to normal intercourse. Some wives endeavour to conquer it, like homosexual men, by imagining during the intercourse with their husbands that they are practising Lesbian connection with some other woman. But even this cannot in some cases diminish the disgust at the intercourse, and such wives refuse to cohabit with their husbands. I know married couples where the wives urge all sorts of reasons, such as fatigue, pain in the abdomen, and so on, to prevent the husbands from having intercourse with them at all, or only at very rare intervals, but where the real motive is the dislike of being touched by their husbands. I know of one homosexual married woman who remained for months under the treatment of a gynæcologist, to whom she pretended to be suffering from all kinds of complaints of the genital organs, mentioning in particular that she had severe spasms in the abdomen after each sexual intercourse. The whole story was nothing but a farce; she merely desired in this way to get hold of a plausible excuse for refusing to have intercourse with her husband. Where the wife has such an aversion, the influence on cohabitation

is naturally just as important as when the latter is impossible owing to the absence of erection in the husband. Besides, even where the dislike of the wife does not go quite so far, the gratification of the husband's desire is rendered very difficult by the absence of counter-affection on the part of the wife.

Absence of Harmony where One of the Married Partners is Homosexual.—We have further to consider that a harmonious married life is very much promoted by a sexual cohabitation which affords gratification to both sides, or which is at least not loathsome to either of them. If one of the partners is perverse, and experiences in consequence disgust during intercourse, not only is it impossible for both sides to feel satisfaction, but the danger is very great that the disgust will also give rise to moral antipathy. It is true that many sexually anæsthetic or frigid women also exhibit an absence of real pleasure during intercourse, but still they do not experience such a disgust at being touched by their husbands as is done by some homosexual wives. Moreover, this disgust at being touched is present not only during cohabitation, but also at other times, and this applies to the homosexual husband as well as to the homosexual wife. Such a husband can kiss his wife with reluctance only. A lady who was married to a homosexual man—the marriage is now happily dissolved—describes the typical way in which he used to kiss her. He would always draw in his lips so as to make the touch as little close as possible, because a hearty kiss was not only a matter of indifference to him, but actually unsympathetic. To such a man the kiss of a woman is just as disagreeable as to a normal man the kiss of another man. And no less disagreeable to a marked homosexual woman is the kiss of a man. The sexually anæsthetic but heterosexual wife is capable of experiencing towards her husband all the signs of love; she takes an interest in him, likes to kiss him, and so forth. Of this there can be no question in the homosexual wife. Even if for material reasons she simulates

passionate affection while having intercourse or while being embraced, and she succeeds in deceiving her husband for a time, she is sure to forget herself once sooner or later, because she does not possess the real inner incitement, because she has not the feeling of love.

In addition to the sexual difficulties which are created by the homosexuality of one of the partners, it also happens that the other general relations of the married state are equally disturbed by the homosexuality. Marriage is not only a cohabitation for the purpose of sexual connection; for this reason the existence of virility is not in itself a sufficient cause to recommend marriage. Even if we regard prudential marriages as morally permissible, and discard all romantic extravagances, we must nevertheless demand a moral inclination of the two parties towards one another, seeing how imperative it is for a happy marriage. Pronounced homosexuality of one of the parties precludes the possibility of conjugal comradeship: it also precludes the possibility of a harmonious married state.

There is the additional element that homosexuality is in itself repugnant to most people. We have only to remember how society condemns all homosexual intercourse. Even among prostitutes this practice is looked upon as something base. This being so, normal people are never disposed to marry homosexual persons, or to allow individuals closely related to them to do so. I do not take here into account the criminality and punishableness of the homosexual intercourse, but desire to point out merely that homosexuality is, as such, a quality which acts upon other people as disgustingly and repugnantly as, say, a repulsive skin disease. The description of the homosexual as a hermaphrodite in body and soul is quite correct, and just as physical hermaphroditism is æsthetically repulsive solely on account of its disharmony, so homosexuality is repulsive for the very same reason. Whether the homosexuality has been acquired during life, or whether it is to be regarded as congenital, is immaterial; the

whole represents a sort of malformation, and from the ethical point of view the question is worth considering whether marriage with such an individual ought to be inflicted upon the other partner.

So long as the homosexual is single, the perversion constitutes a danger to him alone; but when he joins his fate to that of a woman, by whom he brings children into the world, his homosexuality may become disastrous to others as well. This is the case not only where the homosexual intercourse takes place after the marriage, but also where it occurs before that event, and infamous blackmailing is one of the subsequent results.

Another further danger is that the homosexuality itself may demand its gratification. Where no reliance can be placed upon the suppressibility of the perverse desire, marriage must be most energetically opposed, as we must not in any shape or form abet adulterous homosexual relations, any more than heterosexual adultery. Conjugal strife is often aggravated by the circumstance that not only does the sensual desire require gratification, but that a true love springs up between the homosexual partner and a third individual. The homosexual married woman has not infrequently sexual relations with a female friend. Exactly as she is depicted in Belot's novel, 'Mademoiselle Girand ma Femme,' she refuses to have intercourse with her husband, but carries on the same with her friend. Though this homosexual intercourse takes place often enough in secret only, and behind the back of the husband, it nevertheless happens that in some cases the friend acquires such a powerful influence over the married woman that she forces herself into the household, and this can go so far as to make the husband occupy a most lamentable position. Cases are known to me where the common bedroom of the married couple is at the disposal of the two women friends, and where the husband is excluded from it whenever the humour of the friend is that way inclined. Just in the same manner the homosexual husband sacrifices his wife and

home in favour of his male paramour. All sorts of jealous scenes are apt to occur, and acts of violence between the parties concerned are not infrequently the result.

The married state can be disturbed just as much by the homosexuality of one of the partners as by a woman or man, as the case may be, intervening between a sexually normal married couple; the difference is only that the anguish of the deceived partner at seeing the happiness of the marriage destroyed by a perverse relationship must be considerably greater. It is worthy of consideration that the normal partner also may, in the end, be driven by the perversion of the other to commit moral and physical adultery. A wife whose homosexual husband is at the utmost capable of performing cohabitation occasionally with the greatest difficulty, and who does not receive the slightest love from him, while on the other hand he practises at the same time homosexual intercourse—such a wife will naturally have no difficulty in breaking her vows too, and, obeying a natural impulse, she will finally seek gratification outside the bonds of her marriage. As to the consequences of the unfaithfulness, if the latter is not confined to a solitary occasion only, but rests upon a lasting extraconjugal affection—as to the results on the education of the children, for instance—it is hardly necessary to say very much here. That divorce or separation is bound to come in the end is quite evident. I have a knowledge of quite a number of cases of divorce which had their origin entirely in the homosexual intercourse of the husband or the wife, and in several of these cases I have actually myself recommended the dissolution of the marriage.

Disturbances in the married state may, however, occur also where the homosexual relations have not gone quite so far as to culminate in perverse sexual intercourse. This is often the case with sexually anæsthetic women—that is, women in whom the desire for detumescence is absent, and who do not for this reason have any intercourse with others, but who possess, nevertheless, homosexual proclivities. The desire to

be together with the woman they love, to possess her exclusively—albeit without any sexual intercourse—involves the neglect of other interests and persons, of husband and children, just as much as perverse intimate cohabitation. It does, however, happen sometimes that homosexual women commence, as soon as they have become mothers, a more regulated domestic life, and that they forget their female paramours, to whom they had clung most passionately, in favour of their children. Though the marriages in such cases are not exactly very happy ones, maternity is, nevertheless, capable of recalling homosexual wives to a sense of their duties, and of supplying them with an object to which to devote their lives. Married couples are known to me who were prevented from becoming divorced by motherhood exclusively, and in a few cases in which the question of divorce arose during pregnancy I have recommended the postponement of the matter up to the time of the confinement, so as to see the effect of motherhood upon the homosexual wife. I do not take up the position that a dissolution of the marriage must be avoided at all costs ; it is, on the contrary, sometimes the best possible course to be recommended in the interest of all the parties concerned, but, on the other hand, we should remember that it ought not to be brought about lightly or hastily, especially where there are important social reasons pointing the other way.

The Effeminate.—It is further to be recollected that some homosexuals, men as well as women, present, not only in regard to their sexual desires, but in other directions also, several qualities which belong more to the other sex. Men with female inclinations are described as effeminates, women with male tendencies as viragoes. Such men are attracted towards other men not only by their sexual desires, but they generally feel that they do not belong to their own sex. They regret that they are considered, on account of their genitals, outwardly as men. In their entire behaviour, in all their movements, they manifest female traits ; they prefer to

be dressed in female attire, are fond of female adornments, and vanity in respect of their outward appearance as well as the follies of fashion and coquetry are developed in them to a remarkable degree. Of themselves they say that they 'pretend' to be men. Some of them not only shave with the greatest regularity and punctiliousness, so as to retain a feminine-looking face, but employ depilatories in order to obtain better results. Some wear corsets so as to give their figures as female an appearance as possible, use women's stockings, prefer domestic arrangements such as suit ladies only, have their boudoirs, and so on. They are fond of feminine occupations, such as needle-work and the like; masculine pastimes, such as smoking, drinking, sport, etc., are unknown to them. The character, too, is more like that of a woman—talkativeness, moodiness, an inclination towards untruthfulness, often amounting to affected hypocrisy, are under such circumstances observed.

The Virago.—Similarly, some homosexual women exhibit masculine peculiarities of character, apart from the sexual desire. They have a passion for wearing men's clothes; they smoke, and not cigarettes only, but cigars as well; they prefer masculine occupations to the supervision of the household arrangements. I am informed through several quite reliable sources that a number of lady champions of women's rights are pronounced homosexuals who entertain amorous relations with other women. Such homosexual women are fond of sport, like riding on horseback, athletics, and fencing; they have no love nor the necessary adroitness for needle-work, and such-like. When yet children, some of them were fond of playing at soldiers or robbers rather than with dolls and other girlish playthings. Their movements resemble those of the male sex; the gait is unwomanly. They prefer to dance with other women. Some of them—I know personally several such cases—have gone so far that, in their disinclination to follow a feminine occupation, they have, disguised as men, done work for many years which is generally done

by strong men only. I may mention the case of a woman who has worked for many years as a stone-cutter. Some have even taken an active part in war-service.

That such men and women are little suited to enter into matrimony with individuals whose character is that of their respective sex, and that serious conflicts are sure to occur in connection with such marriages, does not admit of the slightest doubt. Men with such inclinations take more interest in the domestic arrangements than most normal women will allow: they interfere in every household detail; while, on the other hand, women of this kind have no understanding for, nor interest in, the management of a household.

For the sake of completeness, I have to mention yet that there are cases where men or women feel heterosexually, but where they nevertheless consider themselves as belonging generally to the other sex. Such a man likes, for instance, to dress as a woman; he wears corsets, ladies' underclothing, ladies' stockings, ladies' boots, yet has sexual inclinations towards women. Female charms only can bring about processes in his genital organs. Such a woman feels sensually attracted towards men, but in other things she prefers to lead the life of a man, and she possesses male characteristics. These people also are not generally adapted for marriage, seeing that they are short of those qualities which are necessary for their position as husband or wife respectively. It also happens that they do not find full gratification in sexual intercourse, and such men are even frequently impotent in their connection with female persons; for although female qualities exercise a sexual irritation in them, real cohabitation is mostly to them an insufficient satisfaction. It is a peculiar contest which they find themselves drawn into; on the one hand they feel an attraction towards the female sex, and on the other they would like to see the position reversed.

3. Heterosexual Perversion.

I have so far spoken of the disturbances caused to the married state by homosexuality. Perversions which, though they are directed against the opposite sex, are excited by abnormal means, and which aim at abnormal acts, are, however, also calculated to injure married life most severely. To this class belong sadism, masochism, and fetichism. I will consider these three perversions separately, but will afterwards add a few general observations dealing comprehensively with the medico-legal dangers, the prognosis and treatment, so as to avoid repetitions.

Sadism.—Let us take sadism first. It is easy to imagine the conditions which are bound to arise if husband or wife has pronounced sadistic inclinations, and is bent upon satisfying his or her sexual desire by cruelties, blows, or other ill-treatment inflicted upon the other partner. Even slight degrees of sadism may assume an enormous importance, although it is hardly possible here to distinguish between the physiological and the pathological. The husband plays in sexual life the more active part, and overcomes, by using even a small amount of force, the natural modesty of the wife who shrinks from giving herself away. A serious disturbance of the married state will hardly occur in consequence, provided the force employed does not exceed the amount which is welcome; but a pathological increase of this activity is sure to exercise a considerable influence. A sadistic inclination is even far more detrimental to the harmony between husband and wife than a violent temper, seeing that as a manifestation of the sexual desire it is frequently beyond self-control. Where the latter is absent, the married state of the sadist is necessarily a long chain of continued cruelty which takes different forms. One need not think in this connection of those extreme cases where the impulse to stab, to strangle, or to kill, takes hold of the sadist. But let us rather remember those husbands who do not induce their wives by gentle

physical persuasion to consent to intercourse, but force them into it by brute strength while holding them fast and overpowering their resistance. The transitions are here naturally quite gradual in character. Nevertheless, the outside public has no idea of the scenes which take place sometimes in the married life of sadists, and only the medical adviser who possesses the full confidence of the family gets to know occasionally something about them, or else the lawyer, if the dissolution of the marriage becomes inevitable.

In numerous cases the sadistic act takes the place of the process intended for the procreation of children, and all desire for intercourse is absent. There is even in numerous men of this sort an actual impotence. Sometimes the sadism alternates with normal sexual desire, or with masochism, and the extent of this normal sexual desire may occasionally have to be taken into consideration when the question of marriage arises.

Masochism.—Masochism, the perversion in which gratification is sought by means of subjection to the other person, is also of importance to the married state. The male or female masochist takes delight in being fettered, bound, beaten, ill-treated, or stabbed, by his beloved associate. A simultaneous gratification of both sides can take place only if one of them is masochistically and the other sadistically inclined. The great desire of the male masochist is, therefore, a female sadist. In one case of which I know this went so far that a masochistic man and the sadistic woman whom he married concluded before their marriage a regular agreement stipulating in the most exact manner their reciprocal sexual intercourse. The agreement was in accordance with the perversion, and included even a clause that the husband was not to interfere in any way with his wife's other arrangements. The masochistic sensation of the husband reached here the highest degree—namely, that in which he found his delight principally in the unfaithfulness of his own wife. How such a marriage is likely to turn out is not difficult to guess.

With regard to the general question whether the male or female masochist is adapted for marriage, it is necessary to take into consideration the entire reciprocal relationship. There are different kinds of masochists. Some like to be constantly under the whip of the woman, others are dominated by the perverse feeling only during intercourse, and look, after their gratification, upon their wives as true helpmates with whom they like to discuss their common interests. It is true that many experience after the act a feeling of intense shame towards the other partner, but this may diminish in the course of time, and finally disappear altogether. In other respects many masochists are very well fit for marriage. If some of them are eccentric, others are possessed of qualities which make them quite fit to become husbands and fathers of families. It must, nevertheless, be admitted that some masochists change their inclinations exceedingly often; they are excited by one particular woman only so long as they cannot obtain her. As soon as their wish is realized, the excitement disappears. However, masochism, if not of too pronounced a character, can be influenced favourably by married life, since habituation plays here a very important part. The discernment of a sexually normal wife can, with the help and under the direction of an experienced physician, do a great deal towards causing the disappearance of light degrees of masochism, especially if the masochist himself employs that self-discipline which is so very necessary.

Fetishism.—Let us now consider the subject of fetishism in which the border-line between the pathological and the physiological is, perhaps, even more difficult to define than in the other sexual perversions. Under normal circumstances it may also happen that a man becomes enraptured by a certain part of the female body or by certain female qualities, and the same may occur in a woman with respect to the male sex. Some are enthusiastic about a beautiful head of hair; others dote on fair hair only; others, again, are charmed by beautiful teeth; one individual is fascinated by small hands, another by

small feet. It can hardly be maintained that there is something pathological in such predilections. Indeed, we can go further: even in the predilection for certain objects belonging to a woman—for instance, articles of dress or dress materials—we need not necessarily see a morbid inclination. We must take into consideration that a large portion of our physical qualities is hidden beneath the clothes we wear, and that under normal circumstances, too, a certain amount of sexual sensation is in consequence associated with dress, without there being anything pathological about it. If, therefore, one individual is fond of a waist such as is shaped by the wearing of corsets, and another becomes sexually irritated by the sight of a woman dressed in furs or silks, we must be careful before we declare the one or the other a pathological subject. The sexual irritability of civilized man becomes changed through habit, and perhaps also through hereditary forces, and it partly clings to objects which, though not belonging to the human body, are associated with it. I need only mention the fondness which many women entertain for the military uniform, which is perhaps unconsciously or consciously regarded as a symbol of bravery and courage, qualities in the male sex which attract the female. If there is, therefore, nothing abnormal in this, we must consider further that there are still higher degrees of this physiological fetishism. The enthusiastic young lover who is happy when he can hold in his hands and kiss the neckband or glove of the girl he adores, or who finds the highest bliss in touching with his lips the letter from his lady-love, can hardly be regarded as pathological. Were we to see in such sentiments a contra-indication to marriage, we should almost have to prohibit the marriage of every individual who experiences real love. What characterizes these last-mentioned cases as non-pathological fetishism is, first of all, the circumstance that the person in question does not love the object as an object, but because it serves to remind him of the woman he loves; besides, in these cases the fetishism does not go so far

as to prevent the individual from normal sexual action. If on the other hand, a man hankers after the neckband or handkerchief of any woman unknown to him whom he meets in the street, if he presses frantically to his lips the handkerchief of every possible prostitute, if he has in consequence erection, or even ejaculation—in other words, if the personality in question is altogether of minor importance, and an object belonging to her plays the principal rôle, the person herself being nothing more than an appendage of little consequence —it is in such a case that we can speak of pathological fetishism, or that we can regard it as an impediment to marriage. Such an impediment may also be considered to be present if the fetishism applies to a definite part of the body or to an object belonging to the woman whom the individual in question is intending to marry.

In a case known to me, intercourse is only possible if the husband all the while holds and presses in his hands his wife's handkerchief, in another if he sees before him and touches her shoes during the act. Let one imagine what must be the feelings of a married woman whom I know, with whom her fetishistic husband can practise sexual connection only if she appears before him in full evening dress. A wife has the right to demand intercourse with her husband without having to apparel herself thus, and whether she would agree to such unreasonable conditions is so doubtful that one must certainly expect a troubled married life under the circumstances. Such cases of fetishism may, in spite of an existent virility, disturb severely the married state.

4. Importance of Prognosis.

The decision in any given case as to whether a sexual perversion is a sufficient cause to prohibit marriage often depends mainly on the prognosis. Some even very pronounced cases of perversion may be expected to disappear during and under the influence of married life, whereas of others the same thing cannot be said. Important factors in this connection are the

presence or absence of such additional elements as a hereditary predisposition or an abnormal psychical or physical constitution. The perversion which springs from a diseased nervous system or on the basis of insanity cannot be removed with the same certainty as that which has developed in an otherwise healthy organism. The age is also an important point. In younger people the chances of the perversion disappearing are greater than in persons who have reached the age of thirty or forty.

We may also take it that the prognosis is worse in those cases in which the perversion is periodical, as the probability is that they are due to epilepsy, and that the outbreaks are occasioned by sudden impulses. Such sudden impulses are also very likely the cause of the cases of exhibitionism which have of late years frequently engaged the attention of different law courts. There are men who experience now and then a desire to exhibit their genital organs in public places, especially in the sight of females. Although the character of all these cases is not quite clear, we are justified in ascribing some to senile dementia or progressive paralysis, and others to epilepsy or hallucinations resting on a degenerative basis. Marriage cannot here be expected to exercise a favourable influence, and is therefore not indicated.

It is also necessary to mention here that cerebral diseases are often ushered in by signs of sexual perversion, there being no other evidence of disease in the brain. I remember the case of a lady who would not at all believe that her husband was suffering from a cerebral affection. He had committed indecent assaults on little girls, and had on that account been placed by some friends in a lunatic asylum. The wife, who was still young, thought that this had been done only for the purpose of shielding him from legal punishment; she did not believe me, either, when I diagnosed that her husband was undoubtedly suffering from progressive paralysis. She wanted, apparently, to take advantage of the situation in order to obtain a favourable divorce. Even afterwards, when the

husband, broken down completely in spirit, lay paralyzed, the wife thought that this was nothing but the consequence of his dissipations.

It is evident, too, that the prognosis depends to a great extent on the treatment instituted, and an important part of this treatment is formed by the self-education and self-discipline of the patient.

With regard to sexual inclinations towards children and animals, the prognosis in the former may, on the whole, be considered as unsatisfactory. In the latter, if the subject of the perverse inclination is a woman, married life may be expected to have a favourable rather than unfavourable effect. In men the perversion is a sign of degeneration, and, as such, an indication against marriage.

5. Psychical Impotence.

By psychical impotence in the narrower sense, we understand those cases where the sexual desire is normal, but where the virility is absent as an immediate consequence of psychical processes. There is usually, in these cases, a want of erection and ejaculation. In some of them, however, erection alone is absent, while ejaculation takes place nevertheless. The psychical processes which lead to impotence can be of different kinds, but they are generally based upon emotions. Among these the principal one is the fear of impotence. The more the individual in question desires to be virile, the stronger the inhibitory representation which prevents the erection. Most of the patients belonging to this group are neurasthenics, but not all. Many of them were in the habit of indulging in all sorts of sexual excesses, and are now afraid of the consequences which they grossly exaggerate. There are also other emotions which produce psychical impotence. This is, for instance, observed in husbands who look upon every act associated with the sexual organs as a profanation of love. Some of them have led a chaste life; others, again, are no novices in matters sexual. Their relations to the

female sex have, however, always been of a sensual nature; now they experience for the first time a real and enthusiastic love, and are at great pains to dissociate it from all sensual thoughts, so as to preserve it in all its purity. Such feelings are capable of inhibiting the erection, and of thus causing impotence. The fear of impregnating the wife may also lead to impotence. There are, further, other psychical processes besides the emotions which can act inhibitorily—*e.g.*, the concentration of the whole mind upon one particular subject. I remember the case of a scholar who was for a long time pursued by a scientific problem as by a hallucination, and was during the whole of that period impotent.

In considering psychical impotence with respect to marriage and the married state, it is best to take as an illustration a typical and very frequent case.

A man who has had occasional intercourse with prostitutes is seized with a fear of impotence shortly before his engagement or marriage. To test his virility, he visits a prostitute, and finds as a matter of fact that he is impotent. He repeats the attempt several times, and always with the same want of success. The virility fails him exactly because he is afraid of his impotence. He thereupon consults his medical adviser and asks him whether he may marry.

What will the attitude of the physician be? He will take into consideration the whole of the circumstances and the former life of the patient. If the latter is otherwise in good health, if he manifests no signs of severe neurasthenia or psychopathia, if it appears that he has not weakened his virile power by excessive masturbation, and that he often experiences powerful erection, for instance in the morning, or if erection takes place under normal heterosexual representations, the physician will not be afraid to give his consent to the projected marriage. There must, of course, be a further preliminary condition, namely, that there exists a pronounced sexual inclination towards the future wife. Great importance must be attached to this; the individuality of the taste and

of the inclination must be taken into consideration, since no normal man is necessarily potent in the presence of every woman. Whether a sexual inclination does exist, every man must, of course, feel for himself; he must know whether he feels attracted to the girl of his choice, whether he would like to touch her, to kiss her, or whether he takes a still higher interest in her. The occurrence of erection when he embraces and kisses her, and a feeling at the genitals which is difficult to describe, can supply a certain indication whether a sexual inclination does exist, but they are no positive proof of virility. On the other hand, if there has previously been much masturbation, if the psychical impotence accompanies a severe neurasthenia, or, if it assumes the form of an illusion which dominates the patient and marked erections are never observed—in such a case it is generally better for the projected marriage not to take place. In view of the great misfortune which incurable impotence may bring to married life, medical advice is here not only necessary, but imperative, as it is highly important to establish in the first instance whether the impotence is really one of a psychical character only. There is always a risk in the sort of cases with which we are dealing that a psychical cause will be accepted where there are others at work. We have not only to think that diabetes, tabes, and some intoxications, can equally produce impotence, but we must also distinguish strictly between psychical impotence and neurasthenic impotence, which is, as a rule, connected with masturbation and other sexual excesses. Such a differentiation is the more important as the purely psychical impotence is no material contra-indication to marriage, while neurasthenic impotence causes in this respect the greatest apprehensions.

Medical men are just as frequently consulted after marriage on account of psychical impotence as before it. To some extent the doctor's task is in such cases simpler. In the first instance the difficult duty of giving advice in favour of or against a contemplated marriage does not devolve upon him.

and he can, besides, reckon, as a rule, upon the co-operation of the wife in carrying out the necessary treatment—this, of course, on the supposition that the wife really loves her husband, and that she does not want to exploit his psychical impotence for the purpose of obtaining a separation from him. If the treatment is to be successful, it is absolutely indispensable that the wife should in this matter take up an entirely unprejudiced position towards her husband, and that she should follow strictly the injunctions of the medical adviser.

6. Consideration of the Offspring.

Sexual Perversion without Degeneration.—I come now to the question whether regard for the offspring should deter the sexual pervert from marrying. Some authors look upon sexual perversion as a symptom of a condition of degeneration, and there can be no doubt that a degenerate procreates very often diseased descendants. We must, however, remember that even a most minute investigation into the family history of sexual perverts does not always permit of any definite conclusions pointing to a hereditary predisposition, unless we are prepared to extend the latter far beyond the limits of reasonableness. As proof we might mention a few prominent persons who, though admittedly victims of sexual perversion, cannot, nevertheless, be regarded as degenerates. It is true that the perversion was sometimes with them temporary only, as in Goethe, whose poem 'Lilly's Park' describes in a masterly manner the sensual delights of one's own humiliations—and Goethe is supposed to give expression to his personal experiences more than any other poet. There are also several other proofs of episodic sexual perversion to be found in Goethe, and yet we do not look upon him as a degenerate individual. Attention has recently been called to Grillparzer's homosexuality, which had more than a merely episodic character. But Grillparzer neither has hitherto been supposed to have been a degenerate. The

opponents of the degeneration theory point out further that the ancient Greeks, whose homosexual passion was almost one of their national customs, were surely anything but degenerate, and there are instances of homosexual phenomena among uncivilized nations to whom the word 'degeneration' is not even applicable. We must at any rate admit that there are perverts in whom no degeneration can be demonstrated. Of course, if we are inclined to look upon the occasional migraine of a consanguineous relation as a severe hereditary taint, we should not have much difficulty in proving almost everybody a degenerate. We should then be able to establish degeneration not only among the well-to-do classes, but also among the poorer people, not only in the large towns, but also in the smaller ones, and even in the country; not only in perverts, but almost in all of us, no matter whether there is sexual abnormality present or not. There can consequently be no doubt that there are cases of sexual perversion, and not only episodic ones, without any degeneration. If we bear this in mind, we shall be able to look upon perversion as something which is in itself hardly sufficient to stamp the individual in question as hereditarily affected, or as one who is a source of danger to his descendants.

Sexual Perversion in Tainted Individuals.—But if sexual perversion cannot be regarded unconditionally as a hereditary taint, the suspicion must, nevertheless, arise that, where it is present, an abormal constitution does exist which might prove calamitous to the progeny. Because we know with absolute certainty that very often sexual perversions are present simultaneously with neuropathic and psychopathic symptoms either in the pervert himself or among his consanguineous relations. Idiocy and other mental disorders, epilepsy and delusions, alcoholism and hysteria, suicide, all sorts of eccentricities, cruelty, and the like, are not infrequently observed in the consanguineous relatives of the pervert, who is, apart from his perverse sensations, very often himself of a morbid nature.

For this reason it is necessary, where hereditary predisposition is present, to ascertain its extent, in order to be able to advise with regard to the contraction of marriage. The more signs there are of hereditary predisposition, either in the pervert himself or among his blood relations, the more correct it is to prohibit his marriage. It must, however, also be taken into consideration how numerous the relations in question are. If the pervert has eight brothers and sisters, if both parents also have many brothers and sisters, and these have equally large families, a single case of insanity will not count as much as in a case where the parents have no brothers and sisters, and the only brother of the pervert is a victim of insanity. This point is often overlooked, but it plays a very great part if we wish to understand the real value of the hereditary predisposition. Nor could we find a contra-indication to marriage, say, in an occasional headache of the pervert's mother or in an occasional outburst of violent temper on the part of his father. The number of affections regarded as hereditary has recently grown so much that, with a little latitude, one might be able to prove an inherited taint in almost anybody. There are, however, cases where the danger to the eventual progeny is so great that it is absolutely necessary to dissuade against procreation, even if the pervert himself is, apart from his perversion, the subject of no other morbid phenomena, and the latter are manifest only among his blood relations.

Consanguinity.—The question is also of importance whether marriage should be permitted among blood relations. Opinion is still divided as to whether consanguinity, as such, represents a hereditarily predisposing factor. But on one point there is general agreement—namely, that if blood relations wish to marry one another, and severe mental and nervous diseases have occurred in their family, the danger of hereditary taint in the eventual offspring is particularly great, and for that reason it will be necessary to prohibit the marriage in such a case. This necessity is greater still if the

hereditarily affected pervert intends to marry a girl who is hereditarily tainted, or, *vice versâ*, if a perverse girl desires to get married to a man who, though sexually normal, is descended from a hereditarily tainted family.

The Probability of Hereditary Predisposition.—Generally speaking, it is hardly ever possible to foretell with certainty whether diseased or morbidly predisposed children will be the outcome of any one marriage. Although hereditary predisposition plays a very important part, we know that healthy parents can procreate diseased children, and diseased parents healthy children, even though the disease of the parents is one which is reckoned among the hereditary diseases. We can only offer a prognosis with regard to the eventual offspring with a certain amount of probability, and decide accordingly in favour of or against a contemplated marriage. But when the prohibition of a marriage appears indicated out of regard for the future offspring, it must be pronounced with all energy and determination. I go so far as to maintain that a medical man has a right to refuse treatment to a patient so situated where such treatment is a necessary preliminary to the marriage. Let us take the following case: In a homosexual belonging to an ancient noble family there is reason to anticipate with very great probability the procreation of severely afflicted children. The man has, nevertheless, the wish to marry, as he is anxious to perpetuate his race. Surely nobody can blame the doctor if he refuses to assist him in procreating children; at least, one can hardly say that the doctor is wrong in declining to treat under such circumstances a case of perversion accompanied by impotence. The individual in question should be reminded of the reproaches which his children will eventually heap upon his head. I know cases where children regard it as an unpardonable wrong on the part of their parents that they got married in spite of their predisposition to disease, and notwithstanding epilepsy and many other diseases being present among their blood relations.

Their parents, they argue, must have known what would be the inheritance of their children, and that severe degeneration would be their lot from the moment of their birth. To a young lady, a patient of mine, given to all sorts of perverse inclinations, who frequently behaved outrageously towards her parents, I suggested, amid reproaches, that she should show a little more gratitude to her father and mother, who were sacrificing everything for her sake and for the sake of her health. She replied as follows: 'It is said so often that children should be grateful to their parents for what they do for them, but I know of no reason why I should be grateful. My parents ought, in view of the serious diseases which occurred in the family, to have renounced the idea of procreating any children, and they have no reason to expect any gratitude from a being which they produced through gratifying their momentary pleasure, and which was bound to be the victim of disease all through its life.'

But, on the other hand, it is necessary to discriminate. We must bear in mind that most marriages between individuals whose sexual sensation is normal are, also, not in every respect harmonious. Though many a one looks to marriage for his ideal, the unprejudiced observer must admit that it is very rarely, perhaps never, found. Things are, in ordinary life, totally different than as depicted by novel-writers, and disappointments are not unknown in every marriage. We must remember that normal men and normal women, also, do not have themselves anatomically examined before marriage, and that they encounter, perhaps, bodies entirely different to what they expected. For this reason I do not attach any very great value to whether the physical qualities of the homosexual man or woman appeal to the sympathy of the other partner or not. I only just want to point out that one must not expect from sexual perverts more than from those who are sexually normal. If there are people who agitate against the whole method of modern marriages, and especially against the absence of a previous thorough acquaintance

between the man and the woman—if they endeavour to introduce a reform in this respect, this can undoubtedly do nothing but good ; but the question with which we are dealing here —namely, the significance of sexual perversion to the married state—has nothing to do with the proposed reform, because we have to be guided, not by the circumstances of the future, but by those of the present day.

XXIV.

ALCOHOLISM AND MORPHINISM IN RELATION TO MARRIAGE.

By A. and F. LEPPMANN (Berlin).

1. Alcoholism.

There is an involuntary tendency even among medical men to take the meaning of the term 'alcoholism' in too narrow a sense, and to look upon it as identical with the inability to resist the desire for excessive indulgence in alcoholic liquors, or, in other words, with dipsomania.

It must therefore be pointed out that, from the standpoint of science and for the purposes of practice, the word 'alcoholism' includes all the changes, physical and psychical, which arise if alcohol exercises its toxic effect upon the human constitution, either for a limited period only or for an unforeseen length of time. The limited effect produces acute alcoholism; the continued or long-lasting effect, chronic alcoholism. With the former we are not concerned here.

As regards chronic alcoholic intoxication, it has been proved by various experiments that it can, generally speaking, be brought about by the daily consumption at one sitting of 40 to 100 grammes of alcohol.

Translated into potables, 50 cubic centimetres of alcohol are equal to—

About 1·430 litres of Pilsen beer (3·5 per cent.).
,, 1·351 ,, Munich Hofbräu.
,, 1·564 ,, ,, Spatenbräu.
,, 1·282 ,, Berlin Weissbier.

About 1·020 * litres of Porter.			
,, 0·417	litre of	Moselle wine	} Taking in both of them a quality of medium strength.
,, 0·435	,,	Hock	}
,, 0·542	,,	Champagne.	
,, 0·294	,,	Sherry.	
,, 0·125-0·167	,,	Ordinary brandy.	
,, 0·100	,,	Good cognac.	
,, 0·067	,,	Strong rum.	

It would appear, therefore, that the dangers which arise to the general community from alcoholism are very serious, seeing how many people there are who consume every day a bottle of wine, or from $1\frac{1}{2}$ to 2 litres of Munich beer (about $2\frac{1}{2}$ to $3\frac{1}{2}$ pints) or $\frac{1}{4}$ litre (8 to 9 ounces) of brandy. Though there may be individuals here and there who can stand extraordinary quantities even for a length of time, this is more than compensated by the number of those who can endure less, and does not affect large statistics. At all events, we are justified by the results of the above-mentioned experiments, more than by any other visible evidence, in giving expression to the following conviction: Alcoholism is at the present day in Germany, as well as in many other civilized countries, the most comprehensive danger to health.

It cannot be said that there are now relatively more drunkards than in former times. On the contrary, in 1878, for instance, a satisfactory diminution of 'drunkenness' was noticeable all over Germany. Nevertheless, the consumption of alcohol per head of the population has gone up considerably in most European countries during the latter half of the nineteenth century, with regard to which only we possess reliable statistics.†

But that is just where the danger lies: if drinkers and non-drinkers are strictly separated, the former may in the struggle for existence go down, while the latter continue to propagate

* This figure may be taken as referring to the generality of English beers and ales, which are considerably stronger than what is usually called 'lager beer.'—TRANSLATOR.

† Details will be found in the large edition.

themselves as a vigorous race. Whereas the more the difference disappears, the more we must apprehend that the whole of the population will become enfeebled, instead of there being a process of survival of the fittest and destruction of those who are useless.

A remarkable phenomenon is the increase in the consumption of alcohol by women, which is said to be in England rather striking. In Germany it is not very well marked, but decidedly present.

Influence of Marriage on Alcoholism.—Now, what are the relations between married life and chronic alcoholic intoxication? Like in other diseases, there frequently is a causal connection between marriage and the origin and disappearance of alcoholism.

In the first place, married life at times inhibits the consumption of alcohol. Many men—and it is the men principally who are the victims of alcoholism—drink only because they are accustomed to frequent public-houses, and they frequent public-houses because they lack home comforts. In their case marriage is capable of effecting an improvement forthwith. A similar result is achieved by the more serious view of life which the founding of a family produces in many men, particularly among the well-to-do classes, who were formerly in the habit of carousing merely for amusement and for deriving a certain superficial pleasure. Some people, devoid of self-reliance and accustomed to take part in the follies of others, may get rid of their injurious drinking habits not in consequence of marriage as such, but by the influence exercised by a clever and determined wife.

On the other hand, it is but rarely that marriage as such, and uncomplicated by definite inner causes, leads to alcoholism. But, still, there are undoubtedly cases where healthy, and also from a psychical point of view average, individuals are so far influenced by sorrow and misfortune in their married life as to seek oblivion and insensibility in drink.

The circumstances are particularly intricate in the case of

people whose inclinations are not of the ordinary kind, but who are severely tainted and pathologically predisposed. It is well known that these have, especially if directly predisposed to dipsomania, a peculiar tendency to fall victims to alcoholism; and although it is wrong to suppose in every drunkard such an original predisposition, the percentage of those among them who are hereditarily degenerate is, nevertheless, very large.

Here marriage is seldom of any use as an antidote, if alcoholism is already developed. Quite the reverse: some of these degenerates are more likely to be influenced by marriage in the direction of becoming drunkards. The moody individual, the paranoic, the man with a temper and a changeable disposition—they all have in married life no end of opportunities for conflicts, and therefore excuses to drown them in drink. She must be a very diplomatic and clever wife who can prevent this.

As to the participation of women in alcoholism, marriage can acquire importance in an unfavourable sense only. As in most European countries public-house life as well as the prevailing drinking habits or occupational opportunities do not come into question as regards the female sex, young women given to alcoholism are, as a rule, either severely pathological persons or individuals who have sunk so low that a beneficial influence on the part of the husband can hardly be of any good.* It is, however, imaginable that females not used to alcohol may feel tempted to follow the example of their drinking husbands, etc., especially if encouraged to do so by the latter, since it is well known that drunkards find a delight in causing the downfall of their friends as well as their own. An unhappy married life may in women, too, be the

* This does not apply so well to English as it does to German conditions, for whereas in Germany one hardly ever sees a drunken woman, the sight is in England by no means rare. Nor is it unusual for women, especially of the poorer classes, to frequent public-houses, a thing seldom seen in Germany, where, however, women make more use of restaurants than in this country.—Translator.

cause of their recourse to alcoholic drink. Now and then, physical exhaustion through repeated labours, or other domestic fatigues, induce a married woman to seek strength from increasing quantities of wine, beer, or spirits, until, though otherwise happy, she becomes a chronic alcoholist. We remember having seen such cases where, even in the absence of predisposing factors or other social causative circumstances, an insuperable craving for drink and severe manifestations of chronic alcoholism arose through the above-mentioned conditions of fatigue. Sometimes lactation leads to the formation of the drink habit, as on its account delicate mothers are often persuaded by their solicitous relatives to take beer or wine.

Influence of Alcoholism on the Married State.—Married life may be regarded from four separate points of view: That of the sexual partnership, that of the mental partnership, that of the mutual material welfare, and that of the procreation and up-bringing of a healthy progeny.

(*a*) **Sexual Partnership.**— In none of these points does alcoholism leave the married state undisturbed. Occasionally, however, the sexual relations form an exception to this rule. The copulative faculty of the alcoholic need not necessarily be materially impaired. And yet this, also, applies only to a small proportion of all the cases. In the first instance, alcoholism, if it is accompanied by frequent attacks of acute drunkenness, is capable of seriously impeding the exercise of the sexual intercourse. Who does not remember the words of the obscene porter in Shakespeare's 'Macbeth': 'Lechery, sir, drink provokes and unprovokes; it provokes the desire, but it takes away the performance'? The drinker is just in the midst of his intoxication seized most strongly by sexual desire, but there is no power of copulation; besides, there is the disgust which the female married partner experiences towards the drunken husband, and which usually causes in her a disinclination to submit to intercourse under such

circumstances. Then, in the intervals between the single excesses the real alcoholic is languid, tired, irritated—in brief, in a psychical and physical condition which deprives him as much of the desire for sexual pleasure as of the ability to perform sexual intercourse. In the not very rare cases in which alcoholism has reached the stage where drunkenness alternates with exhaustion, there is sometimes a complete cessation of all sexual intercourse between the married partners.

That form of alcoholism, however, which does not consist of single bouts, but of a customary excess that need never lead to drunkenness, can also interrupt the sexual partnership. The alcoholistic nervous debility, a frequent consequence of continuous intoxication, is capable of producing inability to perform copulation, or a weakness of the copulative power, as much as any other neurasthenia. At the same time, the desire is not absent, but, on the contrary, it increases rut-like with every single bout of drunkenness. This compels the alcoholist to seek in his intoxication special excitements to sharpen his impaired sexual power, and this craving for excitements makes him a pervert. In this way he becomes an exhibitionist, etc., or he is driven to commit immoral acts with children. Into this latter method of gratification he is, perhaps, also influenced by the circumstance that in the presence of sexually inexperienced persons he has no need to be ashamed of his infirmity.

(*b*) **Mental Partnership.**—The mental partnership of married life is interfered with by alcoholism much more seriously and regularly. The alcoholist of a lower degree frequently dazzles, as long as he is under the immediate influence of alcohol, by his quickness at repartees, his wit, and his ingenious ideas; but he lacks the power of quiet discrimination and what is rightly called 'sober' common sense. The brilliancy which he owes to the effect of the alcohol impresses, perhaps, people to whom he is not bound by close ties, but the married partner who has to share with him the serious

side of everyday life, with whom he has to discuss points of the highest moment, is only estranged from him even by this mildest of the results of intoxication. This estrangement increases if larger quantities of the poison begin to exercise their effect, thus still more hindering and impeding the free course of common sense. Where things have gone further still, other results generally manifest themselves, which gradually transform the personality in a very unfavourable sense, making of the alcoholist eventually a criminal or lunatic.

Alcoholism may bring its victims so far as to cause them in their sexual callousness to brutally exceed even the limits drawn by blood relationship. The crime of incest in the form of intercourse with one's own children is, according to our experience, committed almost exclusively by drinkers—excepting lunatics—or, at any rate, under the influence of alcohol. In looking over the records of such cases we are almost invariably confronted with the same picture: an unhappy, miserable family life; the husband a drinker, the wife aged before her time through domestic strifes and constant drudgery, rendered necessary by the long idleness of the head of the family, the children utterly corrupt at an early age through the base influence of such an upbringing. One day the father, having come home drunk, demands that his fourteen-year-old daughter should come to bed with him. There follow blows, kicks, and finally the half-grown-up girl gives way, if she has not, in consequence of a total want of moral feelings, willingly acquiesced in her father's wish from the very beginning. This is repeated now and again, until the neighbours get to know about it and inform the authorities, or until the wife, mad with rage after an especially severe ill-treatment, runs to the nearest police-station and tells all that she has hitherto suffered at the hands of her husband.

We have even known cases where alcoholism has led to procuring, the rough and unfeeling drunkard trying to utilize every possible source, including the prostitution of his own wife, in order to obtain the money wherewith to buy more

drink. This procuring is only apparently inconsistent with the jealous outbursts of the same individuals—these men are but the slaves of their momentary disposition.

Female drinkers incline in the same way to adultery, and especially in the form of prostitution. Only the misery of such marriages does not, as a rule, last so long, as the husbands, less patient than the wives where the circumstances are reversed, soon put an end to the shattered married life by an appeal to the divorce court.

It is rarely that one misses in these cases a feature which, strange to say, is generally absent in other forms of weak-mindedness—namely, jealousy. The alcoholic imbecile, whose own conscience as regards conjugal fidelity is often not quite clear, thinks himself justified in reproaching his wife with adultery because he has seen her once in conversation with some old friend, or because it seemed to him that some passer-by has touched her caressingly, or because he thought a laudatory observation by some third person a suspicious circumstance. Occasionally this jealous mania becomes the most prominent symptom, while the general intellect is less affected, and one can speak in such a case more of a chronic craziness than of weak-mindedness.* As regards the conjugal

* The most extraordinary thing of this sort I have ever seen was the case of a patient of mine, a chronic alcoholic, who had occasional attacks of delirium tremens of rather a mild character. On one occasion, when he was already getting better, and was able to converse rationally on different matters, his wife came with him to my rooms to ask me to talk to him with reference to the awful charge he was bringing against her in the hearing of the neighbours. He accused her of committing adultery with a man while lying by his (the husband's) side and undisturbed by his presence. I tried to reason with him, but it was all in vain ; he persisted with the charge, while the tears were running down the poor woman's face. He was so circumstantial in his details, and so sure that he could identify the man, that I almost began to have my doubts as to whether he was not right after all, though the thing seemed preposterous. A day or two afterwards he had forgotten all about the incident, and all he remembered was that he had been to my rooms with his wife, and that he had been rambling. The case made upon me at the time an uncommon impression, and I shall never forget the scene.—TRANSLATOR.

partnership, this form is naturally just as disturbing and even more disastrous than simple mental unsoundness. Quite a number of the cases of crime committed by jealous husbands which are reported in the newspapers are due to this jealous mania of drinkers.

(*c*) **Material Solicitude.**—The material care of the alcoholic for his family diminishes regularly with the progress of the mental decay. Where the moral decrepitude or unrest has reached a pronounced degree, the earning capacity of the drinker whose vocation centres in himself undergoes deterioration. As officer, employé, or manual labourer he is no longer equal to the demands made upon him, and is soon dismissed from his situation. If the mental faculties are fairly well retained, and the trouble consists more of occasional excesses, great annoyance is caused by these periodical outbreaks of drunkenness, especially among the better classes, though a certain amount of latitude is otherwise not denied in higher circles in matters relating to alcohol. It is rather the less serious forms of alcoholic excess which may severely damage the material position of the single individual.

But if we wish to properly appreciate the significance of alcoholism to the material side of married life, we must take into consideration a field which we have hitherto left out of account—namely, the physical consequences of alcoholism, which involve a premature incapacity to earn a livelihood and a shortening of the life-duration.

Very few organs escape the disease-producing effect of alcohol.

Beginning with those which it reaches first—namely, the digestive tract—we find at its very portal an inflammation of the mucous membrane, which extends in reality down to the stomach. In the latter the disease manifests itself by chronic gastritis, which is very rarely due to any other cause than chronic alcoholic intoxication, and which alone is sufficient to give an almost sure indication of the true state of affairs.

The intestines suffer, as a rule, rather less from the poison, but the liver, on the other hand, correspondingly more. It is generally swollen in alcoholics, partly through the congestion of blood, and partly—this being principally the case—through excessive accumulation of fat.

To the blood-vascular system alcohol causes enormous injury, by giving rise to fatty degeneration and inflammations.

The nervous system is affected particularly severely. We have already mentioned the mental disorders, among which delirium tremens occupies the foremost position, on account of its dangerousness to life. But it is more frequently the nerves themselves which become inflamed under the influence of the alcohol, and thus arise the terrible pains in the extremities which are often for years wrongly attributed to rheumatism. The inflammation of the nerves leads, further, to awkwardness of the movements and weakness of the muscles. To this is added the well-known trembling of the fingers, which is very troublesome in finer work from the very commencement.

Of the organs of the senses, it is especially the eye which is injured, as alcohol may lead to impaired vision through atrophy of the optic nerve, and, in conjunction with abuse of tobacco, to complete blindness.

Of other diseases which seriously injure the earning capacity or shorten the duration of life, and in the origin of which alcohol is often a co-operative factor, we may name the following: gout, general paralysis of the insane, tabes dorsalis, chronic bronchitis. Of what importance all these maladies are to the married state has already been described in previous parts of this work.

Besides, there is hardly a bodily illness upon the origin and course of which alcoholism—excepting, of course, the medically prescribed administration of regulated quantities of alcohol—does not exercise an unfavourable influence. It is, just to mention a few examples, an old-established maxim

in medicine that genuine acute pneumonia, as long as it is confined to the one side, always heals up in adults except in alcoholics, because the heart in the latter is not equal to the increased demands made upon it.

It is at the present day generally recognised that that other scourge of humanity, tuberculosis, attacks drinkers more readily and overpowers them more quickly. A third disease of the masses, general nervous debility, is also not only causally closely connected with alcohol, but in its course, too, it is most injuriously influenced by it. We can very well say in this respect: Even such small quantities of alcohol as a healthy man can take with impunity act upon the man with weak nerves as a poison.

Very remarkable is the intimate association between alcohol and sexual diseases. As the alcoholic or the person who is under the occasional influence of alcohol makes up his mind more readily and with less caution to indulge in extra-conjugal sexual intercourse than the individual who is sober, he is also more subject to the dangers of that intercourse. And what sexual disease means to a married man as regards his own health and happiness, the health of his wife and that of his offspring, we need not enter upon in this place.

There are two more consequences of alcoholism which are of the highest importance to the material welfare of the married state, and which require on that account special consideration. They are suicide and accidents.

If we examine the statistics of suicides we find, as a rule, that drink and drunkenness account as causes only for about 9 to 10 per cent. of the cases. Though this alone would mean for Prussia, say, from 400 to 500 cases annually, the real state of affairs is certainly far worse. For we must also include those cases in which alcoholism leads in an indirect way to self-destruction either through pecuniary losses, moral decay (suicides in prisons or through fear of punishment), or insanity, and a corresponding percentage of the very numerous cases of suicide from unknown causes.

As regards accidents, statistics leave us apparently quite in the dark. But one or two important points have been elucidated. In the Berlin high-building trade, for instance, 25,295 accidents have been statistically dealt with. It was ascertained that by far the most of them had occurred on a Monday, the day after the day of rest, which should in reality be a day of recreation and recuperation. The figure was 18·7 per cent., against 16·6 per cent. on Fridays, and so decreasingly down to 15·6 per cent. on Tuesdays. Can anything else account for this but the excessive drinking on the Sunday? Another point: Before the breakfast interval there happen 13·6 per cent. of the daily accidents; after the same and until midday, 23·5 per cent.; from then until tea-time, 21·8 per cent.; but afterwards, until work is stopped, 37·6 per cent. This cannot be due only to fatigue, in consequence of which the workmen take a wrong step or make the scaffolding less secure, etc.; there must be something else besides, and that something is the alcohol, of which more or less is partaken at the different meals.

Where an accident has happened, it is again alcohol which prevents, in the first place, the recovery from the consequences thereof in the sense of a complete restoration of the working ability. All experts in traumatic diseases know with what difficulty a man accustomed to alcohol overcomes, for instance, the complaints arising from slight injuries to the head or the pain in the soft parts that have been bruised. That the joint action of alcoholism and accident, without any hereditary predisposition, or without an original tendency to degeneration, is sufficient to produce severe nervous infirmity may be regarded as indisputable.

But not only does the chronic alcoholic much sooner than the sober man find himself in the position of having to relinquish the maintenance of his family entirely or partially: he also occasions at the same time a drain upon the family resources which is not caused by the expenditure for drink only. There arise also expenses in connection with medical

treatment, journeys to watering-places, the stay at some institution, civil and criminal proceedings; and how often is the public-house life associated with all sorts of expensive indulgences, chief among them being gambling and women!

It is difficult to ascertain by anything like large figures how many people die prematurely from the effects of alcohol, because mortality statistics too often conceal deaths from alcoholism under such columns as suicide, accident, insanity, heart disease, arterio-sclerosis, disease of the kidneys, disease of the liver, chronic nervous diseases, etc.

But there are other very conclusive statistics—namely, those on the average duration of life in individuals who are employed in the alcohol industry, owners and workmen or employés of breweries, distilleries, wine and beer shops, hotels and public-houses. It appears that brewers, landlords and landladies, have a considerably lower expectation of life than the average population. To give a few of the more striking examples: An average inhabitant of Munich at the age of twenty may expect to live yet nearly 42 years, a Munich brewer only 22·38 years, a Munich landlady 32 years. In England the mean expectation of life at twenty-five years is 36·1 years; that of publicans, etc., only 31·3 years. And it is worth remembering that these are people who are, as a rule, in comfortable circumstances, in whom there are presumably no special occupational injuries to be apprehended, except the temptation to drink.

In all the alcohol industries taken together the expectation of life of individuals twenty-five years of age is, according to official Prussian statistics, only 26·23 years; that of the other male population, 32·08 years.

Insurance companies reject notorious drinkers. Some grant to total abstainers special reduced terms. Tables have been published which show that total abstainers have, in comparison with (alleged) moderate drinkers, a materially higher expectation of life.

(*d*) **Influence on the Offspring of Alcoholics.**—It

has been shown by various observations that the children of drunkards die in large numbers at a very early age, and that an extremely high percentage of them turn out physically and morally deteriorated. Many family trees of drunkards have been published which disclose a frightful picture of degeneration. It must therefore be concluded that alcoholism in the parents is bound to exercise an unfavourable effect upon the progeny. The four special forms of degeneration—epilepsy, idiocy, drunkenness, and an early tendency to crime—appear in the children of drunkards undoubtedly far more frequently than in the offspring of other degenerates, say of lunatics, neurasthenics, or hysterical persons.

With regard to the children of female drinkers, it is maintained that they imbibe alcohol along with their mother's milk, and that their vitality is thereby considerably impaired from the very commencement of their life. But this seems to be only rarely the case. On the other hand, it is worth considering whether mothers who are in the habit of taking large quantities of wine or beer—say between 7 and 9 pints of beer, or from 2 to 2½ pints of wine—while suckling their children, and who transfer thus to the latter about 1 gramme of pure alcohol daily, do not in this way cause injury to their offspring. One would think that in the first months of their existence it is dangerous for children to become accustomed to a powerful drug, be the single dose administered poisonous or not.

Of greater seriousness are, at any rate, the other injuries which usually affect drinkers' children. Poverty and indigence often receive them on the threshold of their arrival into the world; their upbringing is neglected, because a disordered state of affairs prevails in their homes, and often enough because the father dies prematurely. They are frequently ill-treated by their drunken parents, and in a specially hurtful way by blows on the head. They are often almost forced into a life of crime, and encouraged from their youth to indulge in strong drink.

This last point is a particularly sad one. Children stand alcohol exceptionally badly. They acquire, even if they are accustomed to small doses of wine, beer, etc., all sorts of morbid defects, such as indigestion with pronounced swelling of the liver; they become adipose, and suffer frequently from severe nervous symptoms. A recent investigator claims even to have ascertained, by careful calculations, that the brain of children accustomed to alcohol is in all its diameters by 8·12 per cent. too small, and that their increase in weight amounts to only 60 per cent. of the average. That the mental development of alcoholized children suffers severely is beyond all doubt. And now let us bear in mind to what an extent habitual drinkers, out of sheer heedlessness or from a rough enjoyment of everything coarse and incongruous, encourage (often even among the 'better classes') the consumption of intoxicating liquor by children. Thus one observer saw an eight-year-old child of a drinker which had received daily two glasses of wine at midday, and a glass of beer and a glass of wine in the evening, develop, in the course of a pneumonia, genuine and unmistakable delirium tremens; and the same thing, with a fatal result, in connection with influenza, in a boy of eleven, the son of a publican, who was equally accustomed to large quantities of wine. In the child of a spirit-vendor which was fed with brandy the liver became so enormously swollen that it filled half of the abdominal cavity. Such an encouragement of children to take drink does not, however, occur only in isolated depraved individuals, but among large sections of the population which are saturated with alcohol. A striking example is furnished by the home-workers in North Bohemia, who are given to alcoholism through hunger and poverty, and who are in the habit of feeding their infants with a soup made of brandy and bread or potatoes to make the poor babies sleep all day, so as not to disturb their mothers when working.

The conclusion to be drawn from what has been said above is that marriage with a male or female alcoholic should never

be allowed, but it must be admitted that there are enormous difficulties in the way of a prohibition by legal enactment.*

2. Morphinism.

A morphinist is a person who has, through the use of morphia, reached a condition in which he is unable to resist the desire of having further quantities of the substance introduced into his organism. Such a person is in a state of compulsion which, looked at medically, is a mental derangement.

From the standpoint of marriage, morphinism is of importance principally because the morphinist is even far more than the alcoholic inclined to transmit his habit to those around him, and the number of cases in which this is successfully done is decidedly greater in proportion than in drinkers. Women especially are easily induced to give way to morphinism. The explanation of this psychological puzzle lies, perhaps, in the curiosity of women, which is excited by the peculiar and mystical qualities of morphia-intoxication quite differently than by the well-known action of alcoholic liquor. Then the fact that morphinism is regarded by third parties as something æsthetically not so repulsive as drunkenness may also account for the ease with which women succumb to its allurements. What is at all events certain is, that morphinism *en deux* is very prevalent, and that not infrequently other members of the household, servants and children, are also drawn into it.

On the other hand, marriage is rarely capable of bringing about an improvement of the condition where morphinism does exist. The strongest wish to give up the pernicious habit for the sake of those one loves best, the most serious reproaches and most earnest entreaties of the other married partner, are powerless against the inner compulsion. On the contrary, every little domestic trouble, every bit of discomfort

* The subject is dealt with at great length in the large edition, and many details will be found there presenting numerous interesting points. —Translator.

associated with maternity in the wife, every cumulation of duties and cares occasioned by the married state, offers an opportunity for an existing morphine habit to become aggravated, or to return after having once been overcome.

As to the influence which morphinism exercises on married life, it is even more disastrous than that produced by alcoholism. Loss of virility is one of its early symptoms. The earning capacity is considerably reduced. The moral character undergoes a severe deterioration, and though insanity in the narrow sense of the word does not supervene very often, it frequently appears in those who are already psychically debilitated through other causes, such as neurasthenia or alcoholism. If the unfortunate morphinist happens to lay his hand on cocaine as a substitute for morphia, the results are still more calamitous. Morphinism and cocainism leave their mark on the bodily health of the sufferer no less than on the mental and moral. He becomes pale and emaciated, the digestion is impaired, the hair turns grey—in brief, he is in every respect an old man before his time. Every accidental illness, especially if it is accompanied by fever, endangers his life far more than that of individuals who are not under the influence of the respective poisons.

A large number of morphinists put an end to their own existence.

Regarding the procreative faculty, not only are morphinists, male or female, as a rule, sterile, but even when they conceive morphinistic women miscarry in most cases, although exceptions are not unknown. If the children do get born alive, they are not infrequently the victims of chronic morphinism, and opinion differs as to what becomes of them in after-life. Some say that they remain delicate and nervous, and that they eventually become drunkards. Others maintain that if they get over the early period successfully they thrive afterwards satisfactorily.

From what has been said, there can be no doubt that morphinists, male or female, are under no circumstances fit

subjects for matrimony. Whether former morphinists who have undergone a successful cure of the morphia-habit should be medically permitted to marry depends mainly on the length of time which has passed since the cure, and also upon the general health of the person in question. The danger of a relapse is very great, and a probation of several years must therefore be insisted upon as a preliminary condition. Where morphinism has arisen on a morbid psychical basis, the best advice even after a 'cure' is to leave marriage alone. In women especially, the probability that pregnancies and confinements will reawaken the dormant craving for the drug is very great indeed.

In order to cure morphinism in a married individual, a temporary separation from the other married partner is even more imperative than in alcoholism. The placing of the patient in a sanatorium is absolutely necessary, especially as the difficulties which exist in the case of alcoholism with regard to the maintenance of the family are not very pronounced, since most morphinists belong to the well-to-do class.

XXV.

OCCUPATIONAL INJURIES IN RELATION TO MARRIAGE.

By A. and F. LEPPMANN (Berlin).

Marriage undoubtedly exercises a beneficial effect in the direction of preventing injuries arising from various occupations.

In the first place, a large number of women from among those who follow an employment withdraw by marriage from it altogether in order to devote themselves to a vocation which is at all events considerably healthier than the majority of all the other female occupations. Girls whom we see as shop-assistants, embroiderers, seamstresses, ironers, mill-hands, and in other kinds of situations, anæmic-looking and delicate and suffering from all sorts of nervous complaints, often become, by marrying, strong and healthy women. This is not due only to the circumstance that married life affords physically and mentally a more satisfactory existence than does spinsterhood, but also to the fact that a large number of the occupational injuries do not come into action after marriage.

The man, it is true, continues, even when married, to be subject to the injurious influence of his occupation. But a happy married life and a well-regulated domestic routine enable him to protect himself to a much greater extent against those injurious influences. To most men marriage means an improved mode of life, such as is urgently wanted in the struggle against occupational dangers.

The unmarried working man finds, as a rule, when he comes

home tired after his day's work, no attendance, no comfortable room, no properly prepared food, and sometimes not even a bed upon which he can stretch his weary limbs. Instead of counteracting the preceding exertion by the beneficent influence of rest, good nutrition, and—last, but not least—moral comfort, he is, on the contrary, obliged to add to the one damaging element another in the shape of the evils of the lodging-house and public-house life. Under such circumstances marriage is capable of acting as the best preventive against disease; and if disease happens to break out nevertheless, it offers the nursing which is most suitable in occupational diseases, most of which take quite a chronic course.

The observation is also frequently made that a married working man is more careful of his health than the unmarried one. He understands that every illness which would befall him might have for himself and his family consequences of a most serious nature, and he lives, therefore, more hygienically. He is more cautious at his work, so as to escape avoidable injuries. He utilizes more his time of rest, and in a more sensible fashion. A most instructive example of the way in which married working men are almost instinctively bent upon spending their leisure hours under healthy conditions, so as to counterbalance the injurious effect of their occupations, can be seen in Berlin, in the so-called 'summer-house colonies.' Wherever there is yet a large plot of land unoccupied by houses in the vicinity of the capital, it is sub-let in small plots, which are turned into gardens with little wooden summer-houses, the tenants being mostly married working men. During the summer the families stay there the whole day, and the bread-winner himself spends his evenings and Sundays in clearing his lungs of the smoke and dust inhaled at the workshop, while he has at the same time an opportunity in the cultivation of his little garden, or in doing a little joinering at his fence or summer-house, of performing some work on his own account which gives him a chance of exercising his brain and of consulting his own

tastes, after having been at the mill nothing but a human machine engaged upon some monotonous and uninteresting task.

Of course, there is no reason why an unmarried man should not go and do likewise, but it is only marriage which brings as a rule along with it a sense of steadiness and pleasure at the thought of a quiet and regular life, which is the preliminary condition of every hygienic self-help.

The mental worker, too, finds in marriage an aid against the injuries of his occupation. He throws off the senseless habit of 'working away,' he recognises the necessity of giving some of his time and thoughts to other things besides his profession and his duties. And while he feels compelled to give himself a change and to devote a few hours to the wife and children, he observes that he feels more fit and fresh than when giving his thoughts no rest. Where marriage really fulfils its ideal object as a spiritual fellowship, the mental worker is sure to find in his wife at the same time a true comrade, who will help him to bear the moral perturbations of his vocation, and who can do a great deal towards the solution of the inner conflicts which so easily exhaust toilers of this kind.

Unfortunately, this ideal picture of marriage as a help against occupational injuries is by no means always applicable. Quite apart from the accidental conflicts of married life which make a beneficial influence of the latter impossible, there is one circumstance which occurs only too often, and which tends to aggravate all occupational injuries instead of acting against them, and that is if the income of the husband is insufficient to support the family so long as his activity is commensurate with the dictates of hygiene.

In such a case the man must either endeavour to obtain more profitable work which overtaxes his strength, or else the family is not in a position to spend sufficient for nourishment, clothes, housing accommodation, fuel, etc., or the wife must go out to work and earn money. In each one of these

alternatives the evil effect of the occupational injuries is bound to be greater.

Coming now to the occupational injuries and diseases which have a special bearing on married life, we may mention first the infection with syphilis in glass-blowers, which has several times been observed to take almost an epidemic form. Then there are the discharging cutaneous inflammations of the genital organs which are frequent in coal-miners and tar-workers, but which arise also easily through a combination of dust, heat, and active movement, and which are capable of disturbing materially the sexual relations between husband and wife. The most dangerous manifestation of these inflammations occurs in the form of cancer in the scrotum of chimney-sweepers and others, which necessitates at times the complete removal of the genital organs.

Female machinists and other workers are known to be subject to various troubles in connection with their sexual sphere, apart from the injuries arising from either constant sitting or a peculiar attitude of the body.

More than ordinary importance attaches to occupational intoxications. Of these, chronic lead-poisoning is the principal. It occurs very often and in most different industries. Workers in white lead, sugar of lead, and accumulator factories, potteries, compositors and painters, probably supply the principal contingent; but there are several more, in fact many more, industries—according to a recent calculation 111—the workmen in which are subject to chronic lead-poisoning. It must be regarded as proved that lead-poisoning in the father, and particularly in the mother, impairs severely the vitality of the progeny. The extraordinary frequency of miscarriage in patients suffering from lead-poisoning is well known.

Another trade poison of great importance is mercury, which is employed, for instance, in mirror-making. It has a destructive effect on the whole organism. As regards its influence on the offspring, and especially whether it acts as

an abortive, we cannot yet say anything with certainty. That children of female mirror-makers are often delicate and sickly has several times been described.

With regard to female tobacco-workers, recent research has shown that they are no more given to miscarriages than other women in the same station of life. But some statistics show that the tobacco industry is not without danger as far as the offspring is concerned.

Another industrial poison is disulphide of carbon, which is extensively employed in the rubber trade, and which is a severe nervine poison. It has a remarkable effect on the sexual faculty, occasioning in some instances complete impotence.

In connection with accidents, we have to mention here neurasthenia and injury to the sexual organs, both of which occurrences may have serious consequences as far as married life is concerned.

Overwork, too, is responsible for a number of troubles, both in the workers themselves and their offspring; and it is with a view to preventing this overwork and its consequences that the legislations of most modern States are constantly introducing restrictions tending to diminish the liability of the workers to disease and accidents.*

* Interesting details on this subject are given in the large edition.

XXVI.

MEDICO-PROFESSIONAL SECRECY IN RELATION TO MARRIAGE.

By S. PLACZEK, M.D. (Berlin).

The question whether a doctor ought to prevent the marriage of a patient who is, medically speaking, not only unfit for marriage, but likely to subject his or her future partner to great danger, is one of considerable importance, but at the same time one to which it is very difficult to give a general answer. In some countries, including Germany, medical men are, by criminal law, strictly forbidden from imparting to others secrets entrusted to them in their professional capacity.* To help themselves out of the difficulty, conscientious doctors have recourse to indirect means of avoiding doing violence to their feelings. They suggest, for instance, to the parties concerned that the prospective husband should

* The English law is silent on the point as far as criminal proceedings are concerned, and the matter is one of civil proceedings purely—that is, the person aggrieved may sue for damages for defamation of character. As it has always been an honourable law with the medical profession that confidential statements made by a patient to the medical adviser are held to be inviolable secrets, as are also facts come to the knowledge of the medical adviser through an examination of the patient, both judge and jury are generally on the side of the latter, and very convincing evidence is required to satisfy them that a medical man who has divulged secrets thus known to him has done so for no other reason than a sense of duty. It is also for the judge to say whether the divulging of the secret was privileged or not, and for the jury to decide whether there is any truth in the statements made if justification is pleaded.—Translator.

insure his life. As this involves a medical examination, the candidate who has reason to object to such an examination refuses, in most cases, to listen to the proposal, and the attention of the other side is thus drawn to the fact that there must be something wrong. Some doctors go further, and openly defy the law, preferring to break the latter rather than be parties to the causation of an innocent individual's misfortune.

There is, besides, a distinct paragraph in the German Criminal Code which imposes punishment upon those who, being in possession of credible information, at a time when it is still possible to prevent the perpetration of a crime, that such a crime is about to be committed, do not acquaint the authorities of the matter. But otherwise German law regards information in the possession of a medical man as privileged, and does not allow its being communicated in a court of justice, except with the consent of the person whose secret the information in question is.*

In the case of married individuals, too, the question of medico-professional secrecy arises sometimes, especially in connection with the Divorce Court, and then the decision

* The English law on this point is very unsatisfactory, and a definite decision is very much wanted. While communications made to solicitors by their clients are considered privileged, no such privilege attaches to information given by patients to their doctors, and the view of the police is that it is the duty of the medical profession to assist them in detecting crime. Among the medical profession, however, a different opinion prevails, and no doctor thinks that he is under an obligation to play the informer or the detective. He must not, however, do more than maintain a passive silence or else he exposes himself to the risk of being regarded as an accessory after the fact. On the whole, the position is that every case depends on its merits, and a great deal of tact is therefore necessary. As a well-known authority —Professor Dixon Mann—puts it, 'the rule is never to violate professional secrecy, but, like any other rules, it may have its exceptions.' An exception of this sort was recently made by a doctor whose timely interference and information to the police saved some lives and brought a notorious murderer (Chapman) to the gallows; on that occasion everybody agreed that the case redounded very much to the credit of the medical profession.—TRANSLATOR.

rests with the doctor whether he should or should not give to the judge the information in his possession.*

* Here, again, the English law is different. No medical man may refuse to give evidence on matters upon which he has professional knowledge if directed by the judge to do so. He has no option, and is liable to be committed for contempt of court should he persist in his refusal.

In the large edition of this work many interesting instances relating to this subject will be found.—TRANSLATOR.

XXVII.

THE ECONOMIC IMPORTANCE OF SANITARY CONDITIONS IN RELATION TO MARRIAGE.

By RUDOLF EBERSTADT (Berlin).

Marriage in the form handed down to us by our predecessors —the so-called traditional marriage—has in recent times frequently been characterized as insufficient and contrary to the most liberal conception of the idea of a joint life. Quite a number of far-reaching problems are raised by this doubtful attitude on the subject of marriage, and there is no doubt that the tendency to 'meditate on the matter,' the absence of confidence in the married state, has had most important results in regard to many of our social conditions. There are, above all, two factors which present themselves for sociological consideration—first, the superior position of the husband from the standpoint of the marriage laws; and, secondly, the stricter view which prevails on the point of the wife's prenuptial chastity and conjugal fidelity. Man has, among the generality of civilized nations, a legal superiority in the marriage state; not satisfied with this alone, he demands from woman sexual abstinence before marriage and absolute fidelity in the course of it. The woman who offends against these injunctions is despised and condemned, whilst for himself man does not acknowledge the same obligations, or at least not the same unpleasant results on their contravention. For this reason it has been argued that marriage in its present-day form has developed from lower forms of brutality and barbarism, and that it is only a stage of

development in the progress of human institutions—a stage which is destined to give way to the next higher form of joint cohabitation. In this further natural development it is first of all necessary that law and morality should place man and woman on a footing of perfect equality as far as their sexual relations are concerned ; so soon as this equality shall have been established, and irregular sexual intercourse on the part of woman will have ceased to be looked upon as derogatory, free love will, in the opinion of the evolutionist school, take the place of the traditional form of marriage.

But although it must be admitted that the difference between man and woman from the marriage point of view is unjust, and that the interpretation of the term 'honour' should be in both sexes alike, it does not at all follow that the evolution of marriage into its present-day form is nothing but the history of man's power and greed. It is not the brutality of man which has imposed upon woman a higher obligation, but it is the work of Nature herself. To woman only is the fruit of marriage entrusted, and especial responsibilities bring also special obligations. Woman loses her honour through mixed and irregular intercourse, because such intercourse unloosens the moral and material ties which bind together mother, father, and child. The further evolution of woman must not be looked for in sexual equality, but in mental equality, and the more we hold fast to the principle that certain differences in the sexual honour are founded on Nature, the more we transfer the further evolution of marriage into the domain of the mind and of ethics.

Even if we imagine marriage in its present form discarded, free love will never take its place either as its equal or superior. Those living in wedlock must necessarily always retain the upper hand over those living in irregular sexual conditions. Whether one is a thorough Darwinist or a strict believer in the Bible, the result must always be the same. The believer in the Bible will believe that marriage is a Divine institution which is and must remain indestructible.

The Darwinist must know that close family combinations have a natural advantage over others, and that they will always succeed in putting into force their views of law and morality. The respective numbers would form no criterion, although the individuals living in matrimony would always be in the majority. Before the combined forces and natural advantages of the regular families the horde of the irregulars will fly and get scattered like chaff before the wind, without being able to exercise any permanent influence on the constitution of law and ethics.

In coming now to the different views as to the value of marriage, we distinguish three such views:

1. The individualistic view, which regards marriage mainly or exclusively as an affair of the individual, and relegates the contraction of marriage and its consequences to the personal will of the parties concerned.

2. The racial-political view, which sees in marriage, exclusively or principally, a means for the improvement and preservation of the race, and which endeavours to regulate the marriage contract accordingly.

3. The social and politico-social view, which attempts to combine the interests of the individual with those of the community, and to achieve for both of them the highest possible measure of prosperity.

Ad 1. The individualistic view is the simplest. It rests upon the assumption that marriage is intended for the welfare and happiness of the individual, and that it is best to leave everyone to look after his own interests. But very little consideration will show that this is wrong. In marriage the welfare of one of the partners depends always on that of the other, and the one-sided and dogmatic adherence to the individualistic standpoint is in the end bound to result in harm to the individual himself.

Ad 2. The racial-political view is almost diametrically opposed to the individualistic. It presents several praiseworthy features, but historical observations show that it rests

on political rather than physiological grounds, and it must therefore be accepted with great caution. What must be particularly avoided is the introduction of analogies from olden times. For the laws of the ancient classical nations were not always meant to raise the character of the bulk of the people, but to create an aristocracy of citizens or race-propagators. A racial-political programme applicable to the constitution of modern States has not yet been formulated, and it is very questionable whether one will ever be drawn up.

Ad 3. As to the politico-social view, its object is to awaken and strengthen the sense of solidarity and responsibility in every one of us. Social politics, in restricting personal liberty of action, has no other aim than a greater measure of welfare for the entire community. The ultimate goal of every well-understood politico-social endeavour must be to obtain the best possible conditions for every single person, no matter whether it relates to the community as a whole or to its individual constituents.

It is principally from this latter standpoint that the question has arisen which has so often engaged the attention of medical men as well as of the lay public—namely, whether on legal and politico-social grounds the contraction of marriage ought not to be made dependent upon the presentation of proofs that the bodily health is good, or that there is at least an absence of diseases which may be a source of danger to the other married partner or to the eventual children.

This is doubtless one of the most important problems ever brought forward. The introduction of health certificates for marriage purposes would be an inauguration of the most far-reaching importance. It would constitute a radically new departure such as our present legislators have never possessed. It must therefore be admitted that the subject deserves our most careful attention.

By a marriage certificate of health we understand a docu-

ment which would state that the bearer of the certificate, having the intention to get married, has subjected himself to a medical examination on certain points, the result of which, whether positive or negative, would be entered in such document. As to the details of the examination and the questions to be answered, this must be left to the consideration of the Legislature. On points other than those prescribed the doctor would have to remain silent. But, on the other hand, it would have to be understood that no responsibility, moral or legal, attaches to a medical man through the fulfilling of this duty, provided he acts *bona fide*. This certificate would have to be handed by the candidate for marriage to the other intended partner, or to his or her authorized legal representative. At the celebration of the marriage the officiating person would have to satisfy himself that the health certificate has been duly handed over, without it being necessary for him to inform himself as to its material contents.

The question arises, What would be the consequences if such marriage-certificates of health were introduced? I need hardly say that such certificates have absolutely nothing to do with the proposal to prohibit the marriage of individuals affected with certain diseases or who are generally of feeble health—a proposal made by some extremists. Such a suggestion cannot be taken seriously. Whether a prohibition of marriage is theoretically feasible may be left an open question; practically, it would at all events, as some attempts in that direction have shown, fail to achieve the desired result. It may be possible to prohibit a man from marrying, but not from practising extra conjugal intercourse or from procreating children. The idea of a marriage certificate of health is radically opposed to that of the prohibition of marriage. It does not propose any interference with the free will of the parties contracting the marriage.

The certificate is not even intended to prevent the marriage absolutely, if the state of health of the applicant is unsatis-

factory. Those who persist in their intention to marry, although they are aware of the real condition of affairs, may do so. There are numerous cases where, in spite of the physical weakness or imperfections of one of the partners, the marriage may be desirable, or where it may turn out perfectly happy. Such marriages may be dictated by pure attachment, and considerations of health are then rightly ignored. An example of this kind has been furnished by Ewald in his article, which was as remarkable for its motives as it was happy in its results. The receiver of the certificate is left free to act according to his or her discretion; in this respect there would be no change from the conditions as we know them to-day.

The intended and probable effect of the introduction of such certificates will be—(1) that greater regard will be paid, as a rule, to the conditions of health than has hitherto been the case; and (2) that frivolous or unscrupulous conduct on the part of diseased candidates for marriage will, as far as possible, be prevented. This double object is certainly of sufficient importance, and it can be achieved without difficulty or serious trouble. We must look at the thing from the standpoint of recent experiences, and from that of developments actually accomplished. Our modern views of life and economics have created social conditions from which we must draw the above conclusions. Particularly the sexual diseases have, for reasons which it is not necessary to discuss here, assumed the character of destructive epidemics which constitute a growing danger to individuals as well as to the public health. Here the certificate of health would act as a beneficial measure of the deepest importance, and it would tend to remove or ameliorate evils which cannot be obviated in any other way. The results could not be otherwise than favourable. There would be more caution in sexual intercourse; the sense of responsibility for one's own health and for that of others—which seems in this connection to be

especially blunted—would become appreciably revived and strengthened.

Of course, it is possible that mistakes and deceptions will arise in various directions in the granting of the certificates of health, but absolute success cannot and should not be expected here any more than in other human institutions. The certificate is not, moreover, by any means intended to be a guarantee of the state of health of the person examined. This is impossible for external reasons alone; an infection may, for instance, take place between the granting of the certificate and the contraction of the marriage, be the interval ever so short, or it may occur after the consummation of the marriage. It will be altogether more correct to describe the certificate of health only as a politico-social measure which is necessitated by certain fixed social evils. But these measures are not calculated to solve the various civil and criminal questions which have recently been raised in reference to the sexual intercourse of diseased persons. The two objects are altogether different.

As regards the realization of the suggestion, there do not seem to be any considerable difficulties.

One point, however, requires some consideration, namely, whether a certificate of health should be presented by both parties to a marriage—in other words, by both sexes. Some authors seem to incline to the opinion that the question must be answered in the affirmative. But I believe that such a regulation would meet with almost insurmountable opposition, and that the necessities of the case do not indicate it. In the first place, there is an objectionable feature in submitting an innocent young girl to a physical examination, and this objection would no doubt be shared by all the parties interested, including the prospective husband, wife, and parents-in-law. Besides, the facts do not appear to favour the necessity of such a requirement. Regarding gonorrhœal diseases, it is admitted generally that, excepting

prostitutes, these affections are prevalent among women to a far lesser extent than among men, and that it is the husbands who are responsible for their injurious effects upon the married state. If we bear in mind, therefore, what is practically realizable and absolutely necessary, we shall conclude that the introduction of marriage certificates of health for the male sex is a desirable innovation from the standpoint of the medical man and the hygienist.

INDEX

Abortion, premeditated, 147
Acclimatization, 87, 116
Acne vulgaris, 274
Acquisitions and heredity, 38, 47
Acromegaly, 181
Addison's disease, 181
Advantages, hygienic, of marriage, 9
Alcohol in the tropics, 100
Alcoholism, 415
Amaurotic family idiocy, 289
Amblyopia congenita, 285
Amphimixis, 40
Anæmia, 183, 185
Aniridia congenita, 287
Anomalies and malformations, 32
Anophthalmus, 293
Arteries, diseases of, 197
Aspermatism, 236
Asthenospermia, 236
Asthma, bronchial, 205
Astigmatism, 286
Atrophy of liver, acute yellow, 212
Azoospermia, 236, 299

Bed-wetting, 312
Bladder, diseases of, 312
Blenorrhœa neonatorum, 285
Blindness, acquired and heredity, 294
Blood relationship. See Consanguinity
Blushing, excessive, 272
Bones, diseases of, 275
Brain, diseases of, 345
Breasts, female, 142
'Bridegroom's disease,' 301

Cancer à deux, 300
of genital organs, 300
of liver and pregnancy, 213
Caries of vertebræ, 280
Cataract, 287
Celibacy, 140
Certificates of health and marriage, 444
Child-bed, 169
Chlorosis, 187
Choice of husband or wife, 20
Cholera, 113
Chorea of pregnant women, 343
Choroid, malformations of, 287
Climate of tropics, 89
Colonies, favoured, 117
Colour-blindness, congenital, 293
Conception, prevention of, 156
Congenital and inherited diseases, 24
Consanguinity, 40, 51, 127
Constipation, 211
Consumption. See Tuberculosis.
Continence, sexual, 11, 301
Cornea, abnormalities of, 286
Cryptorchism, 298
Crystalline lens. See Lens.
Curvature of spine, 279
Cystitis, 313

Degenerates, 348
Diabetes, 173
Digestive organs, diseases of, 207
Dislocations of hip, 281
Divorce and insanity, 369
Dysentery, 115
Dyspepsia and pregnancy, 211

Eczema, 273
Elephantiasis, 273
Emissions. See Spermatorrhœa.
Emmetropia, 286
Emphysema, 206
Endemic diseases, 108
Enuresis nocturna, 312
Endogamy, 52
Epicanthus, 292
Epididymitis, chronic, 298
Epilepsy, 339
Epispadias, 309
Erythema pudoris, 272
Exhibitionism, 405
Exophthalmic goitre, 343
Eye, affections of muscles of, 291
colour of, 285
diseases of, 284
diseases and heredity, 285
form of, 286
refraction of, 286

Favus, 274
Female sex, beauty of, 128
Fetishism, 402
Forms of marriage, 126

Gall-stones and pregnancy, 213
Genitals, female, diseases of, 314
male, abnormalities and diseases of, 309
Genital organs, male. See Urogenital organs
Germ plasma, alterations in, 35
variation, primary and secondary, 39
Glaucoma, 290
Glioma of retina, 288
Goethe's description of marriage, 7
Gonorrhœa, 226
prevention of, 241
Gout, 178

Hæmoglobinæmia, 190
Hæmoglobinuria, 190
Hæmophilia, 190
Hæmorrhagic diathesis, 190
Health certificates and marriage, 444
Heart, diseases of, 193
Hereditarians, 348
Heredity, potential, 40
various forms of, 48
Hermaphroditism, false, 298, 315
Herpes tonsurans, 274
Hip disease, 282
dislocations of, 281
Homosexuality, 383
Husband or wife, choice of, 20
Hydrocele, 300
Hydrophthalmus, 290
Hygienic significance of marriage, 8
Hypermetropia, 286
Hypospadias, 308, 315
Hysteria, 332

Ichthiosis, 274
Impotence, 310
psychical, 406
'Impregnation,' 36
Infantile marriages, 128
Inherited and congenital diseases, 24
Inoculation, protective, 115
Insanity, 346
and divorce, 369
conjugal, 363
inducted, 368
of lactation, 366
of pregnancy, 363
puerperal, 366
Intestinal disorders, 212
Irideremia, 287
Iris, abnormalities of, 287

Jaundice, 212
Jews and eye diseases, 289, 290
Joints, diseases of, 281

Kidney, diseases of, 217
movable, 223
stone and tumours in, 225
tuberculosis of, 224

Lactation, 170
Lens, abnormalities of, 287
Leprosy, 266
Liver, diseases of, 212
Locomotion, organs of, 275
Lupus vulgaris, 268
Lymphatics, diseases of, 199

Malaria, 108
Marriageable age, 122

Marriage, advantages of, to the offspring, 13
and blood relationship, 40
and sex, 441
as cause of disease, 3
economic value of, 441
forms of, 126
hygienic significance of, 8
injuriousness of, 14
in the tropics, 133
origin of, 127
Marriage health-certificates, 444
Maternal impressions of pregnant women, 34
Menstruation, 119, 161
Masochism, 401
Maturity, sexual, 118
Microphthalmus, 293
Miscarriages, accidental, 146
Mollities ossium, 277
Morphinism, 430
Mosaic Law on marriage, 1
Movable kidney, 223
Mutilations and heredity, 46
Myopia, 286
Myxœdema, 180

Necrospermia, 236
Nephritis, 217
and pregnancy, 220
Nervousness, 323
Neuralgia of testicle, 301
Neurasthenia, 323
Night blindness, congenital, 292
Nymphomania, 345
Nystagmus, 287, 291

Obesity, 179
Occupational injuries, 433
Ocular muscles, affections of, 291
Offspring, constitution of, and parental disease, 15
Oligospermia, 236
Optic nerve, affections of, 289
Orchitis, chronic, 299
Osteomalacia, 277
Ovarian tumours, 322

Parental disease and constitution of offspring, 15
Pelvis in various nationalities, 141
contracted, 275
Perverse sexual sensations, 371
Plague, 114
Polyneuritis, 344
Potential heredity, 40
Predisposition to disease, 29
Pregnancy, 164
and diseases of liver, 212
and dyspepsia, 211
and vomiting, 209
Pregnancy-nephritis, 220
Professional secrecy, 438
Progressive paralysis, conjugal, 369
Prolificness, 143
Proportion of sexes, 124
Prostate, diseases of, 306
Psoriasis, 272
Psychical impotence, 406
Psychosis. See Insanity
Ptosis, 291
Pyelitis, 223

Races, acclimatization of, 100
mixture of, 105, 130
Renal calculi, 225
tumours, 225
Retina, affections of, 287
Retinitis and consanguinity, 288
Rheumatism, chronic, 283
Rhinoscleroma, 272
Rickets, 277

Sadism, 400
Scoliosis, 279
Scrofula, 181
Secrecy, professional, 438
Sex and marriage, 441
Sexual hygiene, 149
life in the Tropics, 88, 98
maturity, 118
perversity, 371
Skin diseases, 265
Spermatocele, 301
Spermatorrhœa, 303
Spinal cord, diseases of, 344
Spine, lateral curvature of, 279
Spondylitis, 280
Sterility in females, 317
Stomach, diseases of, 209
Stone in bladder, 313
Strictures of urethra, 308
Sweep's cancer, 300
Syphilis, 251
and the offspring, 258

Syphilis, distribution of, 134
Syphilitic tumours of genitals, 300

Tabes dorsalis, 344
Tabophobia, 344
Testicles, inflammation of, 298
Tetany, 343
Tropics and marriage, 133
climate of, 89
Tuberculosis and marriage, 203
and the offspring, 202
distribution of, 136
of genital organs, 300
of kidneys, 224
of skin, 268
pulmonary and laryngeal, 200

Urethra, diseases of, 307
Urogenital organs, diseases of, 295
Urticaria, 274

Varicocele, 301
Veins, diseases of, 198
Vertebræ, caries of, 280
Vesiculæ seminales, diseases of, 302
Vomiting in pregnancy, 209

Wife or husband, choice of, 20
Womb, diseases of, 316
Women, diseases of, 314

Yellow fever, 111

THE END

WELLCOME LIBRARY INSTITUTE

BILLING AND SONS, LTD., PRINTERS, GUILDFORD